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The Professional Geographer, a journal of the Association of American Geographers, 1785 Massachusetts Ave., N.W., Washington 6, D.C., is published bimonthly at Commercial Printing, Inc., State College, Pa. Annual subscription $5.00; single copies 85 cents (except special issues). Editor, Phyllis R. Griess; Associate Editor, George F. Deasy: Department of Geography, The Pennsylvania State University, University Park, Pa. Second class postage paid at University Park, Pa. **Postmaster: return undeliverable copies to Association of American Geographers, 1785 Massachusetts Ave., N.W., Washington 6, D.C.. return postage for which is guaranteed.**

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THE PROFESSIONAL GEOGRAPHER

VOLUME XIII NOVEMBER 1961 NUMBER 6

THE POTENTIAL OF MILITARY GEOGRAPHY

Louis C. Peltier

Midwest Research Institute

THIS PAPER presents to members of the geographic profession some of the author's thoughts on military geography. In essence, it is a status report on his thinking. Such a report seems pertinent because, over the past 10 years, it has become increasingly apparent that military geography is being permitted to use only a part of its capabilities and thus falls far short of its potential usefulness. It is to such potentialities that this paper is directed.

The general systems approach to military geography postulates that, given men and materiel, the following conditions will prevail: (a) The effectiveness of men and materiel will vary with environmental conditions because man's speed of movement may be altered, his freedom of choice in direction of movement may change, his range of visibility and field of fire may be modified, and his lines of support and communication may be restricted. These variations imply the need for differences in plans and tactics, supply systems, and command structure. (b) Because of the differences listed in (a), above, special requirements are imposed on intelligence for precise information, and on training for flexibility and adaptability. (c) The above differences also would indicate that there are optimum assemblages of men and equipment for a particular set of environmental conditions. Thus, organizational flexibility, and flexibility in supply, become important. (d) The resulting problems and requirements impose a series of special demands on research and development for new materiel design within a context of reasonable cost. (e) With these new items, new combat systems become feasible and can be devised. (f) The application of military geography to combat development, as well as to intelligence and materiel design, is therefore essential. (g) The assurance on the part of all echelons of the military that training, equipment, intelligence, and plans are all consonant with the environment would enhance morale.

The concern of military science. Reduced to a bare minimum, the problems of military science are primarily related to mobility, fire power, and communications. All strictly military topics are concerned with one or more of these three basic elements. The list may be amplified by noting that mobility includes accessibility, speed of movement, circulation, supply systems, and obstacles of all sorts. Fire power comprises such items as fields of fire, visibility, effective range, rate of delivery, impact and blast effects, and even the production of radioactive fallout and other contaminants. Communications involve, among other things, the limiting effects of weather, terrain, and other geophysical conditions.

The essence of military science is that it is operational. It is not strictly objective, for it is concerned with the optimum way of performing a function. There are few unequivocal or dogmatic answers. More frequently, the problem is to define the degree of difficulty, magnitude of effect, probability of occurrence, or some other measure of benefit, risk, or cost. Because of these requirements, military geography probably offers the best area within the field of geography for the development of precise and quantitative methods.

Functions of military geography. Military geography is the borderline science

between military science and scientific geography. Its proper functions are to contribute to the understanding and advancement of military science, and to expand the frontiers of geography.

The most important goal of military geography, from a military point of view, is the contribution to improved combat developments. Other goals include improvements in military intelligence, research and development, logistics, and military training. These ends may be achieved through observation and data collection, collation and analysis, regional evaluation, and designation of requirements and specifications.

The most important function of military geography, as far as scientific geography is concerned, is the expression of needs and requirements for observation and analysis, because these can contribute to improved techniques and a better understanding of geography. For example, such requirements might lead geographers to think more in terms of the effects and meaning of the geographical distribution of observable facts, and of the facts themselves, instead of only their origins and interrelationships. Such a development would certainly contribute to the advancement of both physical geography and economic geography.

Scale in military geography. In any consideration of military geography, it is important to recognize that problems tend to fall into different categories of scale. These reflect differences in number of men, level of echelon, and size of area involved. Three broad categories of scale are apparent. One is concerned with problems on a small scale, generally 1:2,000,000 or less, which relate to global or continental strategy and operations in a gross sense. A second category deals with problems on an intermediate scale, generally between 1:100,000 and 1:500,000, which are associated with military operations at Army, Corps, and Division levels. The third category pertains to problems on a large scale, generally between 1:1,000 and 1:50,000, which are concerned with conduct at levels between the company and the individual soldier. The term operation, as used above, denotes the conduct of a mission including all pertinent logistic support. It presumes, for complete geographical analysis, that the mission, capabilities, and plan are in existence.

For purposes of distinction, the above categories may be called strategy, tactics, and minor tactics, respectively. Strategy is closely related to international politics and international political geography. It is concerned with the strength of nations, national objectives, and the role of military force as the ultimate sanction in diplomatic relations. Tactics is associated with war plans and operation plans. The answers sought are commonly probabilistic in nature, because, though the enemy may be identified, his capabilities and intent may be unknown. Furthermore, at this scale, specific details can neither be examined nor expressed. Minor tactics are concerned with specific military actions in specific places and situations. These cannot be foreseen. The problems, here, generally relate to the range of actions under given local situations.

The present state of the field of military science, as best can be determined, is that much has been written recently on strategy, particularly at the philosophical level. Much new material probably also exists on the level of minor tactics, but it is widely scattered and needs to be drawn together. In tactics, it is difficult to see advance since 1945, perhaps because here, too, the data are widely scattered.

The parts of military geography. The problems and requirements of military science are sufficiently unique to require, in the field of geography, the development of a separate subscience of military geography. Present day geomorphology, climatology, economic geography, and the other components of academic geography do not quite meet the needs of the military. They are more likely to tell what, where, and why things are, rather than what their effects are or how they may be used. The development of a useful military geography will certainly involve some sacrifice on the part of geographers as they deviate from normal academic channels.

Recognizing this, it is possible to imagine both a systematic and a regional military geography. Thus, systematic military geography might include, among other subjects, military climatology, military oceanography, military topography, military botany, military transportation, military economic geography, and military historical geography.

There are already signs of development in each of these fields.

There are corresponding guidelines already in existence which suggest an organization of regional military geography. Army operations manuals, which recognize significant regional differences, exist for areas of arctic and extreme cold, deserts, mountains, jungles, amphibious operations, airborne operations, and cities. These regions presumably involve special geographical conditions which are different from normal operating conditions. Similarly, the Quartermaster Corps recognizes four basic environmental types: cold-dry, cold-wet, hot-dry, and hot-wet. On the basis of these types, the world has been divided into regions for military supply purposes.

It seems most feasible to attempt to identify geographic regions on the basis of the most probable type of operation to be used therein. On this basis, one might recognize eight kinds of military geographic regions: arctic and subarctic, temperate and high latitude forest, desert, mountain, tropic and jungle, urban, coasts, and standard. This list represents the present state of development of the military region concept. It is far from suitable. It is, however, presented here to suggest that there are a variety of environmental conditions in different places, some of which may appear to be dominant, and all of which can potentially and significantly influence the solution of military problems.

The degree to which military geographic regionalization is a useful and applicable device still remains to be tested and proven. However, because armies must operate within coherent areas, it is important to thoroughly investigate and develop this concept. It is entirely possible that the idea of region, which has been so painfully evolved in the past by economic, physical, and climatological geographers, is not valid for military purposes.

Military geographic regions. In any study, one is permitted to take the point of view either of the investigator or of the audience. Probably, if the audience is also the potential user, the point of view of the audience, and the expression of problems and solutions in its terms, is most likely to lead to useful results. If, as the writer believes proper, the primary objective of military geography is the support of military operations, then the organization of military geography in terms of different kinds of military operations is most likely to fit the context of thinking of military scientists. In essence, problem-oriented military geography is advocated.

Regions exist in which certain geographical and environmental conditions are most likely to give rise to special military operational problems or groups of problems. The arctic, tropical forests, and high mountains are examples of such regions. These areas can be delineated, and boundaries established. Identification of the associated regional problems, and their military solutions, form the core of regional military geography. Distinctions between regions should define significant differences in one or more of a list of important military concerns, including mobility, effective fire power, communications efficiency, and supply requirements. These militarily significant regional differences, in turn, may indicate significant areal variations in military equipment, replacement factors, supply items, military training, and organization and command structure. Even the tactics and operations plans may be affected.

These differences may be illustrated by a comparison of operations along the Finnish border, in the Russo-Finnish War of 1939, with those in the Ukraine during World War II. The Russo-Finnish combat was characterized by small natural compartments, short advances, deep snow, limited mobility, restricted visibility and fields of fire because of forests and long nights, and distinct supply difficulties. On the other hand, the Ukranian operations were characterized by a highly fluid front, slight natural compartmentation, availability of a fair transportation net favorably oriented, and by few limitations to visibility and fields of fire. Mobility and supply were circumscribed primarily by mud. Because of these differences, the optimum or most useful equipment assemblages in the two regions were dissimilar, contrasting kinds of troop training were needed, communications and supply problems were unrelated, and, clearly, unlike tactics were necessary. Finland and the Ukraine are in different military geographic regions.

Thus, correct establishment of military geographic regions is important to the design and selection of optimum military equipment, the determination of an opti-

mum supply system, the organization of the most efficient communications net, the optimum training of military personnel, and the design of appropriate plans and organization. However, for geography to meet these needs, effort must be expended toward quantitative expressions of geographical conditions. One must not only know that places *are* different; one must also be able to indicate *how* different. Furthermore, every opportunity must be taken to establish quantitative correlations between military operations and regional variations in geographic conditions.

Need for research in military geography. The difference between the potential for service of military geography, and the present state of its development, may be taken as a yardstick to define the need for growth of the field. Certain of its facets are, today, intensively pursued and in flourishing condition. These include geographical observation and reporting, regional and environmental intelligence, and the use of regional military geography in support of research and development. The efforts of present personnel in these fields are to be commended and their scientific progress supported. In addition, there has been some progress in the field of the geography of supply, but the subject requires further development.

The general arguments for the need of more research in military geography have been presented in earlier papers. These support the contentions: (a) that engineering and engineering design can be improved by geography, and that geography can express a probabilistic approach to design and operation which is relevant to the definition of military geographic regions and the optimization of operational decision therein *(1, 2);* (b) that intelligence and materiel can be united in the solution of military problems *(3, 4);* and (c) that this combination can be extended to problems of supply and distribution. *(5)*

The paper by Lee and Lemons, by implication, suggests that the contributions of geography to the design, supply, and distribution of clothing might be extended to other military items. It raises the question, by inference, of special allowance lists for different regions or theaters. If, indeed, such special allowances represent an optimization of design and supply, then the possibility of regional and theater differences in tactics and organization, imposed by differences in equipment, must be faced. This question of the impact of geographical differences upon the structure and operations of armies becomes one of real significance, if, for example, the considerations are extended to include mobility, deployment, and communications. The author now believes that supply considerations should not be permitted to dominate military geographic research, important though they may be; rather, geographic differences are deemed sufficiently significant to require major adjustments and maximum flexibility in military organizational structure and operational procedures.

The solution to problems such as the above may lie in a union between military geography and operations research. Brackney *(6)* introduces some general solutions for the analysis of combat. Military geography imposes certain variables on these solutions. One promising approach is the method of the actual or simulated operational experiment, such as that described by Thomas and Deemer. *(7)* By such an approach, the pertinence of military geography may be susceptible to scientific proof.

Much remains to be done in military geography. Some aspects of the field which come to mind are the following: (a) the development of new and/or improved techniques for the observation, measurement, and quantitative expression of geographical conditions and their components; (b) the empirical determination of correlations between measurements of geographical conditions and the characteristics of materials, equipment components, items of military equipment, tactical and operational procedures, and combat organization; (c) the establishment of precisely defined military geographic regions, and the identification, therefrom, of needs for new military developments; (d) an improvement in, and redefinition of, the requirements for geographic information on foreign and domestic areas; and (e) an advanced body of specifications for the environmental and operational testing of military equipment. All of these facets of military geography are currently being developed to a small degree; they need considerable additional support and assistance.

Recent and projected advances in science and technology have, in no sense, ren-

dered military geography obsolete. Increases in fire power afforded by nuclear and thermonuclear weapons, and progress in rocketry, have merely imposed a necessity for changes in tactics and organization, and for greatly improved mobility and supply. Land warfare has not been rendered obsolete; one cannot assume that future warfare will be solely warfare of supply. Therefore, there remains a real need for a fully developed field of military geography.

* * *

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THE AMERICAN BOTTOMS: THE VACANT LAND AND THE AREAL IMAGE

Mary Megee

Washington University, St. Louis

RECENT discovery and exploitation of high grade iron ore deposits near Pea Ridge, Missouri, about 60 miles south of St. Louis, has opened up new opportunities for economic development of the greater St. Louis area. Anticipating economic growth, the Kaiser Aluminum Company recently purchased a large tract of land south of East St. Louis, new ports are being set up along the Mississippi River near that city, and adjacent communities are promoting development of industrial parks. In terms of proximity to labor, markets, other manufacturing industries, transportation facilities, and industrial raw materials (particularly coal from nearby southern Illinois and Belleville), and in view of the local availability of large tracts of vacant level land, the metropolitan St. Louis area is one of the most favored in the country for immediate industrial development.

The Illinois portion of the metropolitan region is presently a center of heavy industry. Much of its area is known as the American Bottoms, a name locally applied to a 200-square-mile crescent-shaped tract of Mississippi floodplain, which is bounded by the Mississippi River on the west, and is encircled elsewhere by the river bluffs from Alton in the north to Dupo in the south (Fig. 1). The maximum north-south extent of the Bottoms is 30 miles; its greatest east-west dimension is 9 miles. Elevations range from 400 to 425 feet; slope is negligible, with levees, Indian mounds, and industrial waste piles constituting the only significant relief features.

This study is concerned with the vacant lands in the American Bottoms, and consists of three parts: (a) a survey of the amount of vacant land in the area; (b) an analysis of the industrial potential of such land; and (c) an explanation for the present lack of development of these seemingly desirable industrial sites by industry.

Amount of vacant land. Detailed mapping of the American Bottoms reveals that there are some 40,124 acres of vacant land

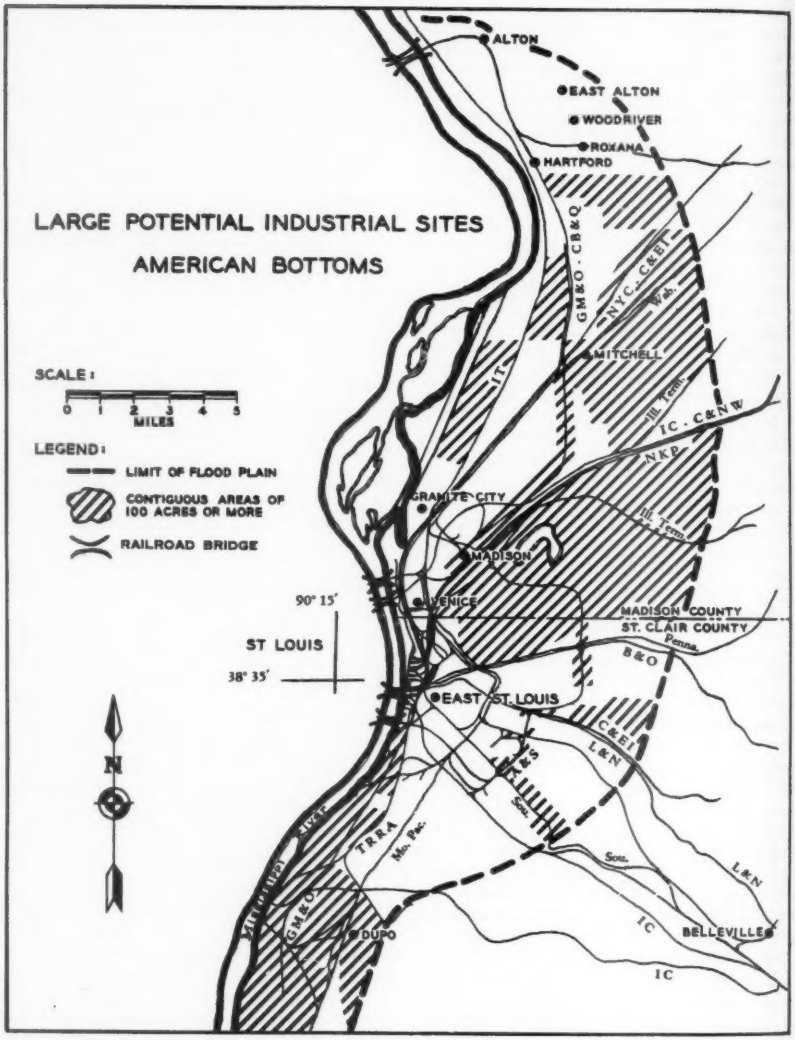

FIG. 1.

(Fig. 1), which may be subdivided into 149 potential industrial sites. These are classifiable into four size-groups: 29 are more than 200 acres in size; 17 are between 100 and 200 acres each; 21 are in the 50- to 100-acre category; and 82 are less than 50 acres each in size. The sites actually range from less than one acre to more than 3,600 acres in area.

Some 67 per cent of the total vacant site acreage is located in Madison County, in the northern part of the region (Fig. 1). Vacant lands in this area are available from the Mississippi River eastward to the

bluffs. In St. Clair County, to the south, the largest continuous area available for industrial development is situated between East St. Louis on the north and Dupo on the south (Fig. 1). Here is some 18 per cent of the total site acreage of the region; recent residential development to the east prohibits industrial expansion to the bluffs. The remaining 15 per cent of the site acreage is located largely between East St. Louis and the bluffs, southeast of East St. Louis, and within the city limits of East St. Louis, Venice, Brooklyn, and Granite City (Fig. 1). Although many of these latter sites are quite limited in size, they are ideal for small industries.

Analysis of industrial potential. The vacant lands of the American Bottoms seemingly possess many of the necessary prerequisites for successful industrial development. A topical analysis of some of the relevant factors follows.

Accessibility to existing metropolitan facilities. The distance from each potential industrial site to the nearest downtown business district, defined here as the downtowns of Granite City, Wood River, and East St. Louis (Fig. 1), was measured to determine how accessible the sites were to major business functions. Of the total of 149 sites, 122 are located within five miles of downtown business districts, and 27 are located within six to ten miles. In fact, no site on the floodplain is located more than ten miles from the downtown area of any of these three cities. Many sites, furthermore, are within ten miles of bluff cities, such as Edwardsville, Collinsville, and Belleville. Moreover, there is almost continuous urban development along the highways and railroads between Alton on the north and Dupo on the south, and between the Mississippi River and bluff cities on the east.

The distance measured between each potential industrial site and the nearest existing industrial aggregation shows that 47 sites are less than one-half mile from large industries, 27 sites are between one-half mile and one mile, and 75 sites are more than one mile from such aggregations. All of the open land lies within ten miles of major industries, and in most cases good transportation facilities afford connections between vacant areas and industrial aggregations.

Railroad facilities. Early development and a favorable location led to the growth and importance of the greater St. Louis area as a major transportation center. Today, 21 railroads serve the metropolitan area, with by far the greatest and most varied service being available in the Illinois portion. This latter area benefits, moreover, from more advantageous location within railroad switching limits. Analysis of the railroad facilities serving the vacant industrial sites shows that 122 sites are located immediately adjacent to railroad tracks and within railroad switching limits; an additional 17 sites have access to spurs, sidings, or tracks of some sort; and only 10 sites do not have direct access to a railroad track.

Highway facilities. The American Bottoms area is well served by highway facilities, as is evidenced by the fact that some 14 Interstate, United States, and State highways cross the area in all directions. In addition, excellent access to St. Louis is available via seven highway bridges.

The Illinois portion of the Bottoms will, moreover, be the focus of a number of new Interstate highways and their interchanges. F.A.I. 70 will cross East St. Louis enroute to St. Louis; F.A.I. 255 will extend through Dupo and connect with the southern part of St. Louis, thus bypassing the central business district; and F.A.I. 270 will pass through Mitchell, making connection with the northern part of the metropolitan area and also bypassing its central business district.

Truck terminal limits approximate railroad switching limits. Some 146 truck transportation lines have offices in St. Louis, indicating the importance of the area as a truck terminal point.

Mapping and classification of the potential industrial sites shows that 112 have immediate access to at least one major highway or arterial route; another 6 have access to major highways via public and private roads of less than one mile length; and only 31 are considered remote, i.e., without immediate significant highway connections.

Water transport facilities. Only 9 of the potential industrial sites front on the Mississippi River, but the whole American Bottoms area has easy access to two ports located on the Chain of Rocks Canal of the Mississippi River at Granite City. The

Bi-State Development Agency operates a 900-foot dock on the Canal, handling about 600,000 tons a year. The Tri-City Regional Port District, which was established in 1959, consists of an upper site of 200 acres of level land on the east bank of the Canal and a lower site of about 750,000 square feet. This port, when completed in 1964, will have all facilities for handling commodities at the port site, including two dry bulk handling docks, a grain dock, liquid bulk dock, package cargo handling dock, warehouses, grain elevators, back-up storage, liquid tank farms, bagging plants, barreling plants, a molasses terminal, a canning plant, and railroad yards at the upper site, as well as facilities for container and piggyback shipping at the lower site. The Illinois Terminal Railroad and the Terminal Railroad Association will serve the port, which lies within railroad switching limits. Moreover, both the upper and lower Tri-City sites as well as the Bi-State port have access to U.S. Alternate 67, and will be served by the new State highway 151, which will pass immediately to the east of the port areas.

An examination of the kinds of commodities moving through the Chain of Rocks Canal in 1960 shows petroleum, grain, coal, sand, other construction materials, sulfur, chemicals, and metals to be the largest in terms of tonnages carried in both directions, with up-bound tonnage almost twice the volume of down-bound tonnage. The greater St. Louis area is in a position to take advantage of the movement of these commodities, with the Illinois portion in a particularly favorable location with respect to the transportation complex.

Air transport facilities. A number of small airports are located in the Illinois portion of the metropolitan St. Louis area, but major air service is provided by Lambert-St. Louis Municipal Airport, which is now only 20 minutes by highway from the Illinois sector. Some 123 flights per day are offered on scheduled airlines. Total air freight handled at this airport was 23,077,735 pounds in 1960.

Utilities. The entire American Bottoms area is well served by utility connections. Electric power is the most ubiquitous, and is available from the Union Electric Company and the Illinois Power Company. The latter company also supplies most of the area with gas. Water is available largely from the East St. Louis and Interurban Water Company. Ground water sources, however, also are abundant, and river front owners have riparian rights. Sewers perform both storm and sanitary functions, and are generally not so ubiquitous.

Flood protection. With the exception of a few places which are scheduled for completion within the next two years, a 52-foot levee system flanks the river front of the Mississippi and the banks of major creeks and diversion channels, thus affording protection against flooding for the entire American Bottoms area. Unprotected river front strips are generally the only parts of the area subject to floods, and these are easily detectable by a general absence of crop farming and the prevalence of wild deciduous growth.

Land ownership. Data regarding ownership of potential industrial sites shows that about 5 per cent of the total site acreage is owned or controlled by railroads, industries, real estate corporations, and trust corporations; and about 95 per cent of the acreage is privately owned. There are no publicly owned sites.

Land values. Information on land values of potential industrial sites is not available for all sites in the American Bottoms. However, examination of existing data indicates that value per acre ranges from $100 in remote agricultural sections to $10,000 for well developed river front sites. Generally, land sells for between $500 and $3,000 per acre, depending upon relative location with respect to the river, transportation facilities, utilities, and distance from industrial aggregations and downtown business centers.

A cursory examination of values of comparable vacant St. Louis sites in Missouri shows that they are higher by several thousand dollars per acre than those in the Illinois portion of metropolitan St. Louis. Moreover, the Illinois sites generally are better served by transportation facilities, are closer to more numerous and more diversified industries, and are available in larger tracts of contiguous level land.

Community facilities. Communities on the American Bottoms floodplain generally leave much to be desired with respect to their appearance. As the servants of heavy industry, they are dirty, smoky, and in

some cases physically unattractive. Moreover, many of them have acquired bad reputations and are popularly associated with gambling, vice, and corruption. Such an image is hard to live down. Within the last five years, however, there have been some notable attempts to improve the appearance as well as the reputation of these communities.

Reason for lack of development. With such excellent location and facilities as described above, it is surprising that there has been a marked lack of development by industry of the potential industrial sites in the American Bottoms area. This situation is particularly incongruous in view of the fact that the competitive Illinois bluff areas and the Missouri floodplain sites are not so well supplied with assets.

The Illinois bluff areas are more remote from major industrial aggregations, population centers, markets, and superior transportation facilities. The Missouri floodplain sites are less accessible to the transportation complex on the east side of the Mississippi River, are not so large, are characterized by higher land values than those on the Illinois side, and are generally not as well protected against flooding. The American Bottoms, moreover, has the established reputation of being a center of heavy industry, which makes for greater industrial diversification.

Many industrial studies deal with such factors affecting industrial location as proximity to market, transportation facilities, and raw materials, but they neglect the human factor. On the one hand, the American Bottoms has excellent proximity to market, transport, and materials, and hence should be extremely well suited for immediate industrial development; on the other hand, the Illinois side of the floodplain has a long established reputation for unattractive slum areas, smoke, labor union problems, and vice. New industry has been reluctant to locate on the east side in spite of all the physical and economic advantages of the area. The prospective industrialist who arrives in metropolitan St. Louis sees only urban blight in the Illinois portion of the Mississippi floodplain. Few people have the foresight to look beyond the blighted facade, to note the growing improvements in the East St. Louis area, and to see the attractive residential communities of Belleville, Collinsville, Edwardsville, and Alton. The first thing to come to the visitor's attention is East St. Louis, and the areal image obtained from viewing this one city appears to have a large influence on managerial decision.

Conclusion. In view of what has been stated above, it would be prudent for industrial location analysts to consider carefully, before projecting and predicting future industrial land use, the extent to which cultural factors, such as unions, construction costs, local area leaders, urban blight, gangsters, vice, and a long-standing bad reputation, influence industry to locate or not to locate in an area. It would seem premature to apply statistical methods of predicting future land use in an area, as long as intangible cultural attitudes toward the land appear to play such a large role in managerial decision.

It can be assumed that areal image has been operating as a factor affecting industrial development of the American Bottoms. Only when the cultural image of the area has changed will the vacant lands of this region respond in full to the obvious physical and economic advantages that they undeniably possess.

CONSERVATION OF INDUSTRIAL SITES

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AS THE PROCESS of urbanization continues in the United States, competition for available land within and adjacent to communities becomes keener and land use conflicts occur with increasing frequency. Manufacturing industries generally require fairly large, well-drained, level sites; likewise, such property happens to be best suited for most other developments, including commercial and residential, as well as agricultural uses. The sporadic nature of city growth, characterized by overexpansion and premature subdivision, frequently results in encroachment of

other forms of land use on potential industrial sites before the need for more industrial land is realized.

The necessity and desirability for more manufacturing industry in a growing community, to provide more jobs and a better tax base, has long been established. A Chamber of Commerce of the United States study *(1)* shows the beneficial effect on community economics of new plant employment. However, the public is not entirely aware of this. Conway *(2)* states: "We urgently need an aggressive long-range educational program to sell the typical American community two truths: (1) that industry is necessary, and (2) that industry can be a good neighbor. While these basic principles have been well sold in many areas, we know of no place where they have been oversold."

The need for site preservation. The necessity of preserving land for future industrial use also has been recognized. Site potentialities are definitely limited in many areas because of topographic and other considerations. Some land, otherwise suitable, is subject to flood; other land has difficult access to transportation; in many areas one or more utilities are lacking. Some land is already occupied. Actually, only a small percentage of the total land area in the nation is both suitable and available for industry. The growing scarcity of good industrial sites requires that land for factories be conserved like any other natural resource. Yet, as Muncy *(3)* says, "Despite the obvious need for more manufacturing space, most urban areas have not reserved enough land to insure efficient industrial growth." She believes "the underlying cause of industrial-site shortage is the lack of civic understanding of industry's operations."

Development men are plagued by the disappearance of industrial sites. For a development man to discover that one of his most promising sites is now, or is soon to be, occupied by a residential subdivision or a group of stores is a frequent occurrence. It is not uncommon to see a good site wasted by the construction of a single expensive home within its limits, for a fine home built within a site area effectively prevents future plant construction. The encroachment of residential areas on potential industrial areas is a significant problem in American communities.

Newman *(4)* feels that the economy of many areas "can ill afford the dissipation for residential and other economically nonproductive uses of properties which are especially suited for use by industry. Residential and other uses can be developed in many topographic and locational situations, but only a few locations are suited for development for the use of industry. Such locations should be preserved and protected for that purpose."

Methods of site preservation. In an attempt to provide for future industrial site requirements, individuals and companies interested in community growth and economic development utilize two methods of industrial site preservation: (a) property ownership, and (b) industrial zoning.

Probably the most satisfactory method of preserving land for future manufacturing use is control by property ownership. Farsighted firms have for years been acquiring properties necessary for expansion. Sometimes this land adjoins their present facilities; sometimes it is in a different location, perhaps in another state. When a firm can anticipate its future needs, plans for acquisition of land can be formulated. Substantial savings are likely if the land can be acquired well before the construction of the plant is announced. Potential problems arise, of course: large capital investment is required for initial purchase, and there are yearly tax payments from which there may be no immediate return; expansion plans of the firm may change; and the possibility exists of future loss of the property through the exercise of the right of eminent domain.

Many others besides manufacturing concerns likewise purchase and hold potential industrial land. Individuals and realtors frequently retain sites until they can be profitably sold. Railroads and utilities also are active in the development field; companies in both groups own thousands of acres of buildable land. It is especially necessary for railroads to preserve sites, because industries are vital to their existence and suitable locations along their tracks are limited. Local chambers of commerce and industrial development corporations likewise invest in plant sites. Indeed, they frequently construct factory buildings as added inducements to manufacturers.

Control of sites by ownership generally seems to be wise, if financially feasible.

It preserves the sites; precludes real estate speculation; and permits the land, which is immediately and specifically available, to be transferred to industrial usage with a minimum of difficulty and a good deal of assurance.

Zoning sometimes is adopted to protect land for industrial use. Frequently, however, and especially in the past, it has been used to restrict industry to the least desirable properties. Often, land zoned for manufacturing is not suited for any of the ordinary types of urban land use, including homes, stores, or factories. Moreover, zoning ordinances usually are worded so that they give little protection to industry, but rather permit encroachment of so-called higher uses upon industrial sites. Fortunately, this situation is being altered in certain areas. With the realization in recent years that industrial use of land is a "legitimate land use possessing integrity comparable to other classes of land use established under zoning" *(5)*, some ordinances are being amended to prohibit the construction of homes and commercial enterprises in manufacturing zones. This feature is not uncommon in newly prepared land use regulatory measures.

Where zoning ordinances have not been enacted, there are no legal restrictions on land use, unless covenanted by deeds. Ownership of industrial sites is particularly desirable in such otherwise unprotected areas.

Conclusion. The whole problem of industrial site conservation is based on the circumstance that economic development is a long term proposition. Sometimes years pass before a plant is attracted to a specific property, and temptation to release land prematurely for other uses is great. Yet, the need for industrial land will continue long into the future, and, once a site is occupied by non-industrial users, it is no longer available to industry except by costly redevelopment.

As communities expand, the needs for industry and industrial land are becoming more apparent. Farsighted communities should appraise their industrial site situations and take appropriate steps to preserve land for anticipated future requirements. Industrial land is a natural resource worthy of conservation, and industrial site conservation measures are becoming recognized as an essential part of community growth and development.

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(2) Conway, H. McKinley, "In Our Opinion –," *Industrial Development and Manufacturers Record*, Vol. 128, No. 4, April, 1959, pp. 2-3.

(3) Muncy, Dorothy A., "Land for Industry – A Neglected Problem," *Harvard Business Review*, Vol. 32, No. 2, March-April, 1954, pp. 51-63.

(4) Newman, Clarence W., the Chesapeake and Ohio Railway Company, personal communication, 1961.

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INDUSTRIAL LOCATION PLANNING IN THE SOVIET UNION

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INDUSTRIAL location planning is a matter of vital concern in the Soviet Union, a nation dedicated to the rapid expansion of its industrial facilities. The prominent role assigned to locational planning reflects the fact that it is considered an essential requisite for building socialism. The importance of planning in the Soviet Union was stressed by Khrushchev in 1957 when he said: "The forty years experience of socialist construction in the USSR has convincingly proved the supreme advantages of a planned economy over anarchy of production and striving after maximum profit." *(1)*

The professed goal in Soviet industrial planning is to promote the social welfare by maximizing production growth and min-

imizing production costs. This is consistent with Stalin's 1952 pronouncement that the basic objective in socialism is "to assure maximum satisfaction of the constantly growing material and cultural requirements of all society through steady growth and improvement of socialist production employing the most advanced technology." *(2)* This social welfare function is conceived as the socialist alternative to the capitalists' sole concern with increasing profits.

Outlining the general course of development. The first step in Soviet industrial location planning is to fix the broad course of development within the framework of a body of general socialist planning principles. These principles have their roots in the economic teachings of Marxism-Leninism and therefore set the ideological limits within which planners must operate. Planners turn to these general socialist planning principles for either guidance or justification for a proposed plan of action.

General socialist planning principles reflect the dialectic premise that socialism evolves out of opposition to capitalism. The origin of socialist planning principles is therefore evident in the Soviet view of capitalist industry, which is characterized as follows: (a) the basic aim of capitalist production is to maximize profits, (b) productive forces are distributed in a chaotic manner resulting from antagonistic clashes and competitive struggles for monopolies, (c) long and wasteful transport hauls result from an ever increasing gap between sources of raw materials and markets, and (d) capitalist exploitation hinders development of productive forces in colonial and other dependent lands and dooms colonial peoples to oppression and economic slavery. *(3)*

One of the leading general socialist planning principles is to establish industry closer to sources of raw materials and to markets in order to reduce long or irrational freight hauls. This objective was clearly outlined by Lenin in 1918 when he said: "It is necessary to introduce a rational distribution of industry in Russia from the standpoint of proximity to raw materials and of the least possible loss of labor through transportation from the initial processing of the raw material, through the stages of processing of the semi-finished product, right through to the receipt of the finished product." *(4)* The presence of extensive mineral deposits in Siberia and other areas far from traditional market centers has often made it difficult for Soviet planners to adhere to this principle. For example, the Kuznetsk steel works established in the early 1930's lacked a significant local market, and the transport haul principle was severely violated. Since the mid-1930's, however, except under pressure of war demands, the Soviets have generally been very conscious of transport costs in their planning.

Another socialist planning principle is to secure the broad industrial development of all regions so that they are as economically self-sufficient as practicable. Each of the 17 major economic regions of the USSR is expected to develop those industries (a) required to serve the basic needs of the population, and (b) essential to maintain the local economy, such as tractor production in the leading agricultural areas, and mining machinery output in the major mining districts. An example of such reasoning is provided by Omarovskiy, who states that "complexes of machine-building plants created within the major economic zones should be able to manufacture almost the whole range of machinery and equipment except unique machines." *(5)* The self-sufficiency concept has influenced the establishment of industries in areas which could probably import the item at a lower cost from another region of the country. For example, the Siberian market for diesel busses would hardly seem sufficient to warrant the recent construction of an assembly and body plant at Kurgan and a diesel factory at Barnaul. More recently, however, the Soviets have increasingly emphasized that the feature of economic autonomy is not always essential, and that it could even result in inefficient production and a diversion of attention from the output of items for which the area is particularly well suited.

A third general socialist planning principle is to promote specialized production in regions which possess uniquely favorable conditions for such production. These favorable conditions may include an abundance of material resources, desirable transport facilities, a skilled labor supply, or historic precedent. *(6)* The need for basic industries as a requirement for a healthy industrial economy was recently empha-

sized by Komar, who wrote: "The chief focus of formation and development of a region are the sectors constituting the basic specialization of its economy. It is precisely the rationally constructed specialization of the economy that reflects the possibilities of a region for the most efficient development of a given type of production in accordance with its natural, economic and historic characteristics." *(7)*

Still another socialist planning principle is to develop industry in previously backward regions so as to raise their economic and cultural levels to those of the most advanced regions of the USSR. This concept presumably represents the socialist alternative to the so-called capitalist exploitation of colonial areas. Although this principle is frequently mentioned in Soviet planning literature, there is little evidence to indicate that this has been a primary determinant in major locational decisions. A possible example, however, is Minsk, where extensive machine industries were established to provide an industrial base for the Belorussian Republic, an area with a limited market and an almost total lack of resources. In general, the objective to raise levels in less developed regions usually serves more as a convenient justification for projects thought to be in the best interests of the state for other reasons.

Other general socialist planning principles aim to eliminate the historical enmity between urban and rural areas by a widespread distribution of industry throughout the country, and to provide the USSR with the greatest possible capacity for defense against military attack. The objective to eliminate historical enmity has apparently proven impractical, and there is no evidence that this principle has affected planning decisions. The influence of military considerations on locational decisions is difficult to assess. It can be argued, for example, that industrial centers were created behind the Urals in the 1930's simply because the raw material situation demanded it. There were cases of critical war industries being maintained near the western border on the very eve of the 1941 German invasion. If the concept of defense against military attack has been a locational consideration, certainly Soviet planners have been inconsistent in adhering to this objective.

Selecting specific locations. The second step in Soviet industrial location planning is to select optimum specific locations for the establishment of new industries or the expansion of existing facilities. In other words, once the broad course of industrial development has been outlined in accordance with general socialist planning principles, it is then the task of planners to make final decisions on the exact location of proposed new activities. This phase is comparable to the locational planning familiar to Western geographers; it involves the selection of a particular town or other locale, but does not include an analysis of sites within the appointed town or locale.

Decisions on specific locations are based on policies largely consistent with Western principles of substitution and comparative advantage. The advantages and disadvantages of each possible location are weighed against each other, and the best place possible is chosen. For example, after establishment of an iron and steel works in Eastern Siberia was justified on the basis of general socialist planning principles, planners compared production costs for all potential locations within Eastern Siberia and finally chose Tayshet, a railroad junction town.

The Soviets have declined to develop a formal body of location theory counterpart to that in the West. They reject the notion that there is any single naturally determined economic relationship between man and his environment. In their view, it depends on the mode of production; in a socialist society, locational decisions must be made by rational man in accordance with the teachings of Marx and Lenin and modern socialist technology. A major problem facing Soviet planners is the difficulty of expressing the social welfare function in quantitative terms.

Western locational theory has been criticized by the Russians as reflecting the capitalist mode of production. In 1958, the economist Feygin dismissed Weber, Hoover, Isard, and others as bourgeois apologists who have assisted the capitalists in their struggle for monopolies and the exploitation of the workers. *(8)* However, it is interesting to note that recently there has been some evidence in Soviet journals of a much more conciliatory attitude toward the locational planning work of Westerners. For example, Saushkin states that "despite the differences in principle . . . , the

techniques of studying [industrial] complexes and constructing models that has been proposed by Isard deserves our attention." *(9)* Certainly this statement is in sharp contrast with that of Feygin two years earlier.

Soviet planners make extensive use of cost considerations in employing the substitution and comparative advantage principles. They have found this to be the only practical way of determining those locations where production costs are lowest . . . or, as the Russians prefer to say, where the highest productivity of labor is attained. It is important to note that the Soviets include transport costs from the point of production to the markets as an integral part of production costs, for in a planned economy it is possible to fix the likely market for a particular product for an indefinite period of time. Saushkin summarized Soviet procedure as follows: "The negation of the theories of Weber and others does not mean that it is not necessary to make technical-economic calculations for planning new enterprises. After the general course of development has been established and an inventory of natural resources taken, it is necessary . . . to consider the development of territorial-productive complexes and to compile data on individual undertakings. Next it is essential to calculate transport expenses to the enterprise. On this basis are selected specific locations." *(10)*

A location's potential for future or long term economies is sometimes an influential factor in decision making. In some instances, the Soviets have established industries in areas lacking a market for the product on the assumption that further industries would soon be attracted to the area and that a market would gradually evolve. Such a practice requires government subsidies to offset initial operational losses or, as in the case of the Urals-Kuznetsk Combine, artificially low transport rates.

The long term point of view has been facilitated by the Soviet practice of not figuring interest or so-called rental rates on capital invested in initially unprofitable projects. However, recent developments indicate a change in Soviet attitude toward capital, even though they are reluctant to admit it for ideological reasons. For example, several hydroelectric projects have been postponed or cancelled in favor of thermal plants because the latter will not tie up capital for as long a period. At the dedication of the Kuybyshev Hydroelectric Station in 1958, Khrushchev said: "It is true, hydroelectric stations are cheaper to operate. After they have been built, they give nothing but profit. But this does not allow for calculation of the time factor . . . It is correct that the electric power from steam stations will be somewhat more expensive, but then these stations will more rapidly supply electric power to our mills and factories." *(11)*

Conclusion. In summary, it is apparent that industrial location decisions in the USSR are influenced both by ideology and practical cost considerations. The ideology is expressed in a set of general socialist planning principles which serve to guide or justify broad locational decisions. With regard to cost analysis, the Russians have increasingly tended to follow procedures similar to those practiced in the West. In a hypothetical situation where conditions are identical, Soviet and Western planners might well arrive at similar conclusions, but the line of reasoning in each case would likely be quite different.

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TOWARD MORE EFFECTIVE METHODS OF OBTAINING LAND USE DATA IN GEOGRAPHIC RESEARCH

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THERE ARE three basic methods of collecting land use data: (1) by enumeration, (2) by observation, and (3) by a combination of the two. When land use data are collected by enumeration, the field man typically obtains information solely by asking an operator of a tract of land a series of questions pertaining to its use. On the other hand, when data are collected by observation, the field man may never see the operator of a particular tract of land.

Comparisons of data collected by these different methods may lead to unwarranted and invalid conclusions. Moreover, important policy decisions, based on such erroneous conclusions, may have serious repercussions in the use of land and water resources. Therefore, an examination and evaluation of the several approaches to the collection of land use data, particularly for rural areas, is currently needed.

Land use data collected every five years by means of enumeration methods by the Bureau of the Census is in widespread use in the United States. Also widely employed are data obtained from annual and special surveys carried out by various agencies of the Department of Agriculture. Some of these latter surveys utilize only observational methods, whereas others employ a combination of enumeration and observation.

The geographer who obtains his own land use data in the field must reckon with the need for making comparisons with data collected by surveys employing dissimilar methods. If his method differs from those used by others, then comparisons may not be valid. Therefore, he must carefully select his method of collecting data if his study is to have more than limited utility.

In the light of the above facts, the basic problem in the entire land use field can be simply stated. It is one of developing a classification of land uses, utilizing definitive criteria for separating the various classes, that will give objective and repeatable results for any area being studied. In this paper, a more meaningful method of collecting land use information is proposed.

Categories, definitions, and criteria. Major categories of land use commonly employed by Federal agencies engaged in collecting such data are: (1) crop land, (2) pasture and grazing land, (3) woodland and forest, and (4) other special and miscellaneous uses. Included within the special and miscellaneous category are several specific intensive uses of land, such as urban and other built-up uses, transportational uses, and recreational uses. Waste land and idle land are also included in the miscellaneous category. Some variation in the designation of major categories exists. For example, the terms range land and grazing land are often used more or less interchangeably. On the other hand, terms such as cultivated land and arable land are not interchangeable with the term crop land in many instances.

In some areas of Europe and Asia, with a long and stable history of land use, the

problem of identifying and defining some of the transitory uses of land is not particularly important. However, in this country, important shifts among major uses of land are still taking place. The use of land during this transitional period is an important identification to make if trends and capabilities of using land for different purposes are to be analyzed critically.

In developing categories for the classification of land use, one of the most perplexing and elusive problems is that of dealing satisfactorily with multiple uses of land. Use of crop land and woodland for pasture, and use of forest land for recreation, are particularly difficult to handle under certain situations. For example, in the South, open type pine forest may have considerable utility for grazing; or, a poorly stocked hardwood or pine forest may be primarily used for pasture, even though classified as forest or woodland by the forester. Some of the most luxuriant forests found in the United States are set aside in parks and related areas and are employed primarily for recreational uses, even though scientific forestry practices are generally carried out on the same lands.

These and similar problems must be resolved in arriving at an effective classification of land use. Unless solutions are reached, meaningful definitions cannot be developed. Generally, multiple use of land must be distinctly recognized in any classification that is to have maximum utility.

In establishing meaningful categories of land use, it is necessary to define categories with sufficient exactness so that their content will be clearly known to the user of the data. It is also important that definitions be sufficiently exact so that comparable data can be obtained by different collectors making their surveys at different places and times.

An example of this problem may be found in the enumeration of woodland acreage by the Census of Agriculture. No specific definition of woodland has been developed for census purposes. Thus the woodland acreage, in millions of acres, reported for the past four agricultural censuses in Texas has been as follows: 1944 – 16.9; 1949 – 32.9; 1954 – 20.0; 1959 –13.6. Obviously, such results are not comparable from census to census, although the same instructions were given to the enumerators in each of the four censuses. This lack of comparability is recognized by the Bureau of the Census, which includes the following statement in its census reports: "Some of the changes in woodland acreages from one census to another may merely represent differences in interpretation of the meaning of woodland."

In contrast to the above cited approach to obtaining woodland acreage by enumeration, the Forest Service employs a ratio-of-stocking criterion in the inventory of forest land area by observational methods. This definition has specific standards which are to be applied by the observer. Although one may not necessarily agree that land which is only 10 per cent stocked with solitary pines in the savanna areas of central Florida is justifiably designated as forest land, in view of its predominant use as grazing land, it must be recognized that the definition employed does contain an exact yardstick for delimiting the area to be inventoried as forest land. Any observer, after proper training, can take this definition into the field and map forest land area in such a way that another observer, who may inventory other areas or even the same area years later, will obtain results which can be compared with the original survey. An effective definition for a land use category must always meet this important test of being able to give the same results when used by different persons and at different times. However, the Forest Service definition does not provide information about the very essential facts of primary and secondary uses of land. Therefore, the observational method alone does not provide a completely satisfactory answer to our methodological problem.

Another example is pertinent in this matter of satisfactory land use classification. Generally, it has not been too difficult to obtain, by use of enumeration methods, reasonably good information from one census to another on crop land harvested. Other subclasses of crop land, however, present an extremely difficult definitional dilemma, especially crop land areas that are idle and those that are being used for rotation pasture. Is a field that has old cornstalks intermingled with young pine seedlings to be counted as idle crop land or as woodland? Using enumeration techniques, the existence of the pine seedlings may be completely overlooked by the operator as he gives his answer largely in terms

of the last productive use made of the land. Observation would permit the use of criteria which should help in refining the concept of idle crop land. But observational methods employed without the benefit of being able to question the operator will also lead to a very ill-defined category of idle land.

The collection of data on the acreage of crop land which is being used for the rotation of pasture and crops, including hay, has been plagued with similar problems. The Bureau of the Census, in the definitional section of the 1954 Census of Agriculture, acknowledges the problem in this way: "In the 1954 and 1950 Censuses, the enumerator's instructions stated that rotation pasture and all other crop land that was used only for pasture were to be included under this class. No further definition of crop land pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under 'other pasture,' depending on whether the enumerator or farm operator considered it as crop land."

In the 1945 Census of Agriculture, an attempt was made to make the definition of rotation pasture more specific by having the enumerator ask the operator if the land had been plowed within the last seven years. Although this inquiry set an arbitrary limit to the rotation pasture subclass of crop land, it did give a more specific delimitation. However, it was discovered that the seven year limitation was rendered meaningless for those tracts which had undergone a change in operator status during the seven years preceding the census. Thus, this definitional problem remains largely unsolved because neither observation nor enumeration alone will give a repeatable result.

From these examples, it is apparent that definitions and criteria of land use categories that are developed for observation methods are generally not satisfactory when the enumeration approach is employed. Likewise, definitions suitable for the enumeration approach cannot always be used satisfactorily with observation methods. Therefore, it is suggested that more effective use of a combination of these two methods be made in studies of land use and in the collection of land use data.

Toward a more meaningful method of obtaining land use data. Recently, the Department of Agriculture completed a comprehensive National Inventory of Soil and Water Conservation Needs. In making this inventory, considerable attention was given to the collection of basic information about soil conditions and present uses of land. The Soil Conservation Service was assigned leadership responsibilities for carrying out the inventory, and the Soil Survey staff of that agency was largely responsible for collecting basic data on soils and land use.

Using a basic sampling rate of 2 per cent, the Biometrics Unit of Cornell University and the Statistical Laboratory of Iowa State University selected the sample areas. These were first located on county highway maps generally having a scale of one inch to the mile. Later, the sample areas were delimited on air photographs having a scale of four inches to the mile. The air photographs were then taken into the field by the Soil Survey staff, and soils and land uses were mapped. Standard procedures for mapping soils were followed. For mapping land use, a set of definitions was developed mainly from criteria already in use by the Bureau of the Census, the Forest Service, and other agencies. After soil and land use data were mapped, the areas included within the various soil types and uses of land were measured. Measurements were then placed on IBM computer cards, and appropriate expansion factors were applied to obtain area estimates of soil and land use for a variety of different areal units. Generally, for the purpose of the inventory, data for counties, states, and the nation as a whole were needed.

This inventory has made a distinct contribution to the collection and analysis of land use data. For the first time, information on soil type, slope, erosion conditions, and land use are systematically available for the same areal unit. By use of IBM computers, data on physical conditions and land use can be compiled and analyzed for different natural, economic, and political units of the country. Thus, more objective and analytical studies of various relationships between physical and other conditions and land use can be made.

However, this inventory did not use the combined approach of observation and enumeration in the collection of land use

information which is needed to secure reliable repeatable data that can be satisfactorily compared with other land use data collected at different places and times. Had funds been available, this combined approach of enumeration and observation could have been employed. If such an approach had been used, after carefully tested definitions had been developed, then the inventory would have provided a much more satisfactory answer to some of the difficult problems in the collection of land use data.

Conclusion. In conclusion, a more meaningful method for the collection and study of land use data should recognize the following needs: (1) more precise definitions of land use categories that are adapted to use in both observational and enumerational procedures; (2) better use of existing tools and aids, such as air photographs, large scale topographic maps, and detailed federal, state, and local land records; (3) greater application of statistical probability sampling procedures, which can both facilitate and improve the collection of data when limited funds are available; and, (4) more use of electronic computers in the compilation and analysis of land use data, so that data can be used as soon as possible after their collection.

LAND USE OR LAND UTILIZATION?

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IN 1945, Ackerman stated that "human geography will never be accepted as a mature scholarly discipline until a more thorough systematic literature begins to take shape in it." *(1)* Little heed has been taken of this plea, and today geography is still plagued by ambiguous terminology, e.g., topography, land use, and resources.

The problem. The term land use, in particular, covers a multitude of sins and causes especial confusion when considered in conjunction with the term land utilization. Further confusion results from the interest of non-geographers in the subject, for investigations into land use are being conducted by soil scientists, economists, conservationists, and agriculturists. *(2)* Their various considerations of the subject emphasize those aspects for which they are best qualified, and there is little cooperation or coordination between investigators.

Originally defined by Sauer as "the use to which the entire land surface is put" *(3)*, the subsequent diversity of approaches to land use caused the term to emerge with a much broader meaning, at times embracing the whole subject of the land and its problems. Individual aspects of the subject have been distinguished by such terms as land utilization, land classification, land occupation, and the like. Furthermore, it has often been claimed, both by geographers and nongeographers, that their particular field of study is the essential element of land use, and there has been a tendency in each field to equate new terms with the term land use.

In geography, for example, land use has come to have both a general meaning, namely, the study of the cultural landscape and particularly the agricultural landscape, and two specific meanings, i.e., the form and the function of the cultural landscape.

An analysis of pertinent literature reveals the confusion in terminology that exists among geographers. Stamp's pioneer work on the form of the cultural landscape of Britain produced a series of land utilization maps, but in the final report *(4)* land use and land utilization are employed as interchangeable terms. In a more recent survey by Tregear *(5)*, a similar situation occurs.

A study of a random selection of 80 geographical articles entitled as dealing with land use (50 articles) or land utilization (30 articles) provides a more comprehensive picture of the situation. Of the land use articles, 24 per cent were general studies, 70 per cent were concerned solely

with form, and 6 per cent dealt with function. General studies accounted for 33 per cent of the land utilization articles, with specialized studies of form and function accounting for 7 and 30 per cent, respectively.

Therefore, except for concluding that the term land use is not generally equated with function, no decisive correlation between terminology and meaning can be established. It should be noted, however, that the term land use is the more popular among geographers since it is employed in 63 per cent of the articles analyzed. The term is even more widespread outside of geography, notably in the fields of agriculture, planning, and soil science.

A suggested solution. Confusion in terminology has arisen in part from the different interpretations placed upon the words land and use. The term land is open to various interpretations, but in the present context it forms the stage upon which land use phenomena occur. Following Sauer's original definition, the term *land surface* is suggested as being the most satisfactory.

With regard to the word use, over 60 connotations are to be found in the *Shorter Oxford English Dictionary.* Two meanings, however, are of special significance to the geographer: (a) the using, or employment, of the land; and (b) the use, or purpose, served by the land. An action, and the setting in which the action takes place, i.e., the function and form respectively of the cultural landscape, are thus involved. To distinguish between these two basic concepts, the following terminology is suggested: (a) *land cover* – the setting in which action takes place, i.e., the vegetation and artificial constructions covering the *land surface;* (b) *land utilization* – the action, i.e., the employment of the *land surface* through the medium of the *land cover.*

From the earlier analysis, it would appear that land use would be the preferable term to apply to the setting, particularly as it has been so adopted by the Commission on Inventory of World Land Use. However, it is rejected for three reasons. (a) The earlier analysis reveals no decisive correlation between the term and the concept of setting. (b) Moreover, the analysis shows that land use is the more popular term for *all* aspects of the subject. (c) But, of most significance is the widespread use of the term land use outside the field of geography. Geographical terms should be self-evident to non-geographers as well as to geographers; the adoption of a restricted definition for land use by geographers would only cause interdisciplinary confusion. A term is required for the setting that will be self-explanatory and that has no other connotations. Cumberland's use of the phrase cultural vegetation *(6)* is a step in the right direction. However, not all of the land surface is clothed by vegetation. An expression is needed to encompass, in addition, man's artificial constructions and those areas where the land surface is exposed. The term cover type areas, used by Osborne *(7)*, is considered to meet these requirements best, particularly when abbreviated to land cover.

The decision to use land utilization to represent the action follows the precedents established by Holmes *(8)* and Fox. *(9)* Bearing in mind the inconclusive results of the earlier analysis, it is not perhaps the most satisfactory term, though preferable to land use. In Australia, at least, its meaning is appreciated, thanks to the surveys undertaken by the Department of Geography, University of Sydney, and to the well-known study by Wadham and Wood. *(10)* Furthermore, it is appreciated by the writer that it would not be easy to discourage use of the term, and it is thought best to use it in its most popular, albeit far from universal, connotation.

The term land use, too, cannot be discarded; it, however, has been allocated in a more satisfactory manner. Land cover and land utilization are but parts of the whole. Initially, separate studies of land cover and land utilization are desirable, due to their inherent differences; but their interrelationships must always be borne in mind. There is little point in studying one without the other, for the action is modified by its setting, and, in turn, the setting is modified by the action. Therefore, *land use* is defined as comprising both *land cover* and *land utilization.* This broad definition of land use is particularly satisfactory in view of its indiscriminate use by both geographers and non-geographers, as noted above.

The land use study, therefore, is the final product – a composite of two distinct yet interrelated phenomena. If the in-

dividuality of these phenomena is appreciated and recognized through the equation:

Land Cover + Land Utilization = Land Use

then human geography will take a step toward eliminating the ambiguous terminology that is hindering its acceptance as a mature scholarly discipline.

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A DECIMAL SYSTEM FOR CALCULATING ANGULAR MEASUREMENTS, TIME, AND GEOGRAPHICAL LOCATIONS

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OUR PRESENT measurements of time and geographical location are very closely related to our system of angular measurement, which is based on the 360° circle. According to most authorities on the history of mathematics, the circle was first divided into 360° by the ancient Babylonians. (1) It is thought that these early astronomers mistakenly believed there were 360 days in a year and that a degree represented the daily progression of the sun. It may also have been that the circle was not so divided until much later by Greek geometers. (2) Perhaps, for the Babylonian and Greek mathematicians, approximations such as 360 for 365¼ days were close enough. They may have been interested in simplifying their arithmetic and hence chose 360 because it has such a large number of divisors: 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 30, and 36.

Unfortunately, the 360° circle is not ideal for modern computations. Its associated measurements of time and geographical location are also difficult to compute. Modifications of the 360° circle into decimal divisions have been considered for several centuries. Briggs (1560-1630), the English mathematician, wanted to publish a table of trigonometric functions of angles divided into hundredths of a degree, but he died before the project was finished. A French mathematician, Lagrange, continued with the idea in the late 1700's. He proposed a division of the quadrant (90°) into hundredths. In this proposal, ¼ of a circle equals 100°. By a decree in 1937, the German Government established a 400° circle as a standard for all surveying work. The only other common system of division of the circle is the radian. It has theoretical significance in

advanced studies, but it is not convenient as a basis for angular or time measurements.

Despite its weaknesses and difficult fractions, the 360° circle is still being used, with very little modification, as it was designed in Babylonian or Greek times. The purpose of this paper is to present an alternative, namely a decimal system for calculating angular measurements, time, and geographical locations.

Sexagesimal and decimal systems. The present method of angular and time measurement is based on the sexagesimal system, that is, using multiples of 60. For example, the 360° circle has six parts of 60° each. Each degree is divided into 60 equal parts termed minutes. Each minute is further divided into 60 equal parts called seconds. Here the system collapses and further divisions of the second are expressed in decimals.

Time is measured by a similarly complicated method. The day is divided into 24 hours. Each hour is divided into 60 minutes, and each minute is divided into 60 seconds. Fractions of a second are expressed in decimals.

A decimal system of calculation has proven more convenient and accurate than has the sexagesimal system. In the decimal system, units and fractions are expressed by their relationship to the decimal point. The fractions and units become progressively larger or smaller by powers of 10. The established metric system of weights and measures, and our money system, are good examples of the use of the decimal system for calculations.

Terminology. The presently used system of angular and time measurement also contains conflicting terms. There is confusion between degrees of angular measurement and degrees of temperature.

Other confusing terms are those using minutes of angular measurement and minutes of time measurement. These two terms are related, but under the existing system are not easily converted from one value to the other. In comparing one rotation of the earth (1 day) to a circle (360°) there are 1,440 minutes of time equal to 21,600 minutes of angular measurement. This is a ratio of 15 to 1, so 15° of angular rotation on the earth's surface is equal to 1 hour of time. The same relationship exists between seconds of angular measurement and seconds of time measurement. The point to keep in mind is that these terms are used extensively in mathematics, the sciences, and engineering. They are confusing because the same words refer to different units of measurement and are not easily converted.

Angular measurement. The system of angular measurement herewith proposed recognizes the circle as a basic and unchangeable unit called *circ*. Prefixes and suffixes employed in the metric system are also used to designate multiples or fractions of the basic unit. The circ (circle) is divided into 1,000 equal parts, each called a *milicirc* and abbreviated *mc* (Fig. 1). For example, 1,000 mc (milicircs) = 1 circ; 1/100 mc = 0.01 mc. With the circle divided into 1,000 mc, a right angle (90°) contains 250 mc, and the sum of the angles of a triangle equals 500 mc (180°).

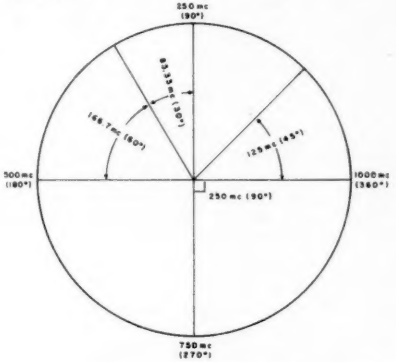

FIG. 1. The metricircle. 1 mc = 1 milicirc = 1/1,000 of a circle; 1 mc = 0.36°; 1° = 2.78 mc.

Trigonometric functions, because they are relationships between the sides and the enclosed angles, remain the same. New tables must be printed to read from 0 mc to 125 mc (0° to 45°). Table I gives a few examples. Complicated interpolations are no longer a problem because fractions of a milicirc are always expressed in the decimal system and their respective values can be quickly obtained.

Time measurement. The proposed system of time measurement recognizes one rotation of the earth as a natural and basic unit called *rota*. One thousandth of a rotation is called a *milirota* and is abbreviated

TABLE I

TRIGONOMETRIC FUNCTIONS: MILICIRCS AND DEGREES COMPARED

Milicirc	∠ *Degree*	*Sine*	*Tan*	*Cot*	*Cos*	∠ *Degree*	*Milicirc*
2.78	1°00′	.0175	.0175	57.290	.9998	89°00′	246.22
27.78	10°00′	.1736	.1763	5.673	.9848	80°00′	222.22
41.60	15°00′	.2588	.2679	3.732	.9659	75°00′	208.40
83.33	30°00′	.5000	.5774	1.732	.8660	60°00′	166.67
125.00	45°00′	.7071	1.0000	1.000	.7071	45°00′	125.00
		Cos	*Cot*	*Tan*	*Sine*		

$1° = 2.778$ mc; 1 mc $= 0.36°$; 1 radian $= 57°20′ = 57.3° = 159.8$ mc.

mr. Multiples or fractions of the milirota are expressed in decimal values. For example, 1,000 mr = 1 rota (rotation); 1/10 mr = 0.1 mr; 1/10,000 mr = 0.0001 mr. With this system, a direct relationship exists between angular and time measurements. During 1 milirota of time the earth turns through 1 milicirc of angular distance. Angular and time markings on a globe are, therefore, the same.

Clocks are to be designed so that the face of the clock is diagrammatic of one rotation of the earth. The rota hand will indicate the relative position of the sun. The point of reference is at the bottom, representing midnight when the sun is on the other side of the earth from the observer. Shading of the bottom half of the clock face would emphasize the period of darkness. Figure 2 is a drawing of the proposed clock.

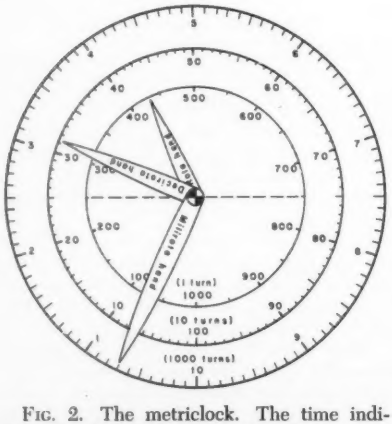

FIG. 2. The metriclock. The time indicated by the hands is 431.17 milirota.

Three hands turning clockwise around the face of the clock indicate the time. Beginning at midnight, all hands will point downward at the 0-1,000 position. The rota hand (shortest) will make one sweep around the clock during one rotation of the earth. The decirota hand will go around the clock face 10 times, and the milirota hand (longest) will go around the clock 1,000 times, during one earth rotation. The circles inscribed on the face of the clock will be numbered from 0 to 1,000, 0 to 100, and 0 to 10, with 10 ticks between each number. The milirota hand will thus sweep out 100,000 ticks during one rotation of the earth by turning 1,000 times around the clock face marked off into 100 ticks. By observing the positions of the other two hands and the momentary position of the fastest moving milirota hand, the time lapse since midnight can be readily observed to 1/100 of a milirota. This is comparable to 0.86 of the currently used second of time.

Geographical location. The present system of indicating geographical location is based on units of angular measurement. Positions on the earth are located by so many degrees, minutes, and seconds north or south of the equator and east or west of Greenwich, England.

The proposed system of geographical location uses the existing world grid system. Locations of latitude will still be made north or south of the equator, and locations of longitude will be made east or west of Greenwich, England. Use will be made of the decimal angular measurements proposed in this paper. Instead of fixing a location by degrees, minutes, and seconds, it would be by decimal units of a circ. For example, the geographical location of Gainesville, Florida is given as approximate-

ly 29°39'59" north latitude and 82°19' west longitude. Using metricircle calculations, the approximate location is 82.48 mc north latitude and 228.82 mc west longitude.

Another interesting relationship is found between the proposed metricircle and the metric system of measurements that has already been established. *Webster's New Collegiate Dictionary* gives the following definition: "The meter was intended to be, and is very nearly, one ten-millionth part of the distance measured on a meridian of the earth from the equator to the pole." This was based on the assumption that the circumference of the earth is 40 million meters, or 40,000 kilometers. There are errors in the original calculations, but for practical purposes one milicirc is equal to 40,000 meters which is equal to 40 kilometers. Distances along lines of longtitude can be quickly obtained by multiplying the number of milicircs by 40 kilometers. Because one milicirc (1/1,000 of a circle) on the earth's surface is the distance the earth rotates in one milirota (1/1,000 of a rotation), any geographical location east or west of Greenwich, England, is also a direct expression of the angular and time differences between that location and Greenwich.

Summary. In summary, the advantages of a decimal system of angular and time measurement would be: (a) increased accuracy and speed of calculations by using decimal units; (b) elimination of confusing terms of degrees, minutes, and seconds; (c) the use of prefixes and suffixes from the existing metric system; (d) the introduction of two new terms, circ and rota, which are abbreviations of the naturally existing units of circle and rotation; (e) direct conversions between milirota and milicirc without a need for calculations because of their direct relationships; and (f) extension of the decimal system of angular and time measurements to geographic location.

The big disadvantage of such a system is that it is a new method. People are resistant to change and a large number of tables, charts, and instruments would have to be changed. The over-all long range advantages of a precise interrelated system would far outweigh the inconveniences encountered during the period of adopting a new decimal system.

Herein is a proposed decimal system for calculating angles, time, and geographic location. Because of its simplicity, it is superior to the systems now employed. An interesting analogy is the metric system of weights and measures that was introduced in 1791. It has been accepted in most countries of the world except Great Britain and the United States. People in the English-speaking world are handicapping themselves *(3)* by continuing to use the bunglesome English systems of weights and measures. The superior metric systems are only valuable to the extent that they are used. Those countries that have adopted the metric system of weights and measures already have the advantage of greater facility in making calculations than do those who are not yet using it. The existing metric systems of weights and measures should be adopted without delay. By also adopting the proposed decimal system of angles, time, and location, the English-speaking people would have a complete metric and decimal system for the most frequently encountered calculations. With a complete decimal system for use in production and research computations, an accuracy and ease of calculating would be achieved that is not realized at the present time. This paper suggests, therefore, that the metric system be adopted in its entirety and that decimals be used for everything.

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PLANNING THE VISUAL PRESENTATION

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The following article is the second in a series dealing with the subject of visual communications for the geographic speaker. The initial article by the author, "When And How Should We Visualize," appeared in the July, 1961 issue of this journal.

THE FIELD OF communications in the business and professional world today is involved in a complex and intense competition for the minds of individuals. Letters, professional journals, presentations at meetings, and advertisements in myriad forms all bombard the recipient with varying degrees of effectiveness. To a large extent, their success or failure is a measure of the quality of the visual presentation rather than the content of the communication, and this generalization is equally true in the field of geography.

Quite logically, then, geographers might ask themselves, "How is a good visual presentation created?" There is no simple answer. As with other forms of expression, an effective visual is dependent upon imagination, experience, and ingenuity, rather than upon formulas and rules. It is necessary, therefore, to examine in some detail the design and purpose of each single geographical visual as it is being prepared.

As general guides to effective visual presentation, K.W. Haemer *(1)* suggests these simple two-word instructions: (a) be direct, (b) be simple, (c) be clear, and (d) be accurate.

Directness. Directness is the art of getting straight to the point. It focuses the audience's attention on the main idea, and tells the story in a concise and well delineated manner.

To achieve directness, it is necessary to analyze the particular subject of a visual with respect to the over-all presentation. Is the point to be illustrated really worth making? Is it essential to the understanding of the talk? If so, does the point deserve the emphasis a visual gives? Soul searching answers to these questions will not only affect the nature and amount of visuals used, but will also tend to improve the quality and incisiveness of the spoken word.

When answers to the above questions indicate a visual is in order, then it is necessary to select the best graphic form for the purpose. Maps, charts, diagrams, and pictures are forms generally employed in the visualization of geographic material. In many cases, the point to be made can be presented in a number of ways. The choice of form and design must be the one which immediately draws the viewer's attention to the particular fact that he should see and comprehend. Everything else should be subordinate. This is directness.

Simplicity. Simplicity involves "organizing soundly and avoiding needless detail." *(2)* Remember, visuals should support the point being made by the speaker; they should not attempt to explain the point. The commentary imparts meaning to the visual, while at the same time the visual creates form and substance for the speaker's words. When preparing a geographic visual, every unnecessary word, line, and symbol must be discarded in order to avoid needless detail. Titles, repetitious labels, needless grid lines, unnecessary place names – all of these are items that should be eliminated from the geographic visual in order to achieve simplicity.

Visuals are intended for the benefit of the audience rather than the lecturer. Many geographers, however, make the mistake of using visuals for program notes or as a speaker's outline. They look upon visuals as a crutch or substitute for thorough preparation of the oral portion of the presentation. Thus, they defraud the audience by forcing it to read the same thing the speaker is reading (but generally out of phase). Closely related, and often more disastrous, is the geographic visual that is expanded into a reading session. In this case, words in the visual are used so freely, at the expense of simple graphic design, that the audience is kept busy reading

them and so loses contact with the speaker. As a guide, consider that the audience can read only 10 to 20 words per visual without losing the speaker's thread of thought. *(3)*

Clarity. Visuals that are simple are apt to be visually clear, but clarity also should be looked upon as calling for clearness of meaning. The geographic speaker should always consider the maxim "not what I know, but what thou knowest." If there is any doubt about their connotations, technical terms should be expressed in everyday language; unfamiliar words, concepts, and ideas must be translated into the familiar. If the meaning of a geographic visual still remains doubtful, then it is time to take a serious look at the text of the talk. Perhaps there are some points that require further development to prepare the audience so that it can understand the visual.

In order to achieve clarity of meaning, a geographic visual must possess unity. That is, it must be free from incompatible and conflicting ideas, symbols, art techniques, and type faces. It is a common and annoying mistake to attempt to cover more than one idea in a single visual. For example, one should not show the distribution of cattle and the extent of turnpike construction on the same map, unless, of course, there is some valid relationship between the two. Lack of unity usually results from trying to "make do" or "cut corners." If cattle and turnpike construction are two separate items within a talk, then two separate maps should be made and each used at the proper time. Single, but complex, subjects are handled through a sequential build up in terms of comprehensible units. Thus, only a part of the visual is exposed to view at a time. After one thought is developed, another section is exposed, and so on until the complete idea (and visual) has been disclosed to the audience.

Another important obstacle to achieving clarity in geographic visuals is to photograph artwork that was previously prepared for another medium and use it on the screen. For example, maps prepared for desk study, no matter how large in size, are never satisfactory for audience presentation. Invariably, borrowed artwork is too small, too weak, or too cluttered for effective presentation to a group. A simply prepared visual for the medium and audience at hand is always more effective than the most professional work designed for some other purpose.

Clarity in visuals also includes the ability of the audience to see the visual from all parts of the room. This implies not only large enough type, bold enough lines, and a sufficiently bright screen, but also an unobstructed view. Although the speaker has no control over obstacles such as columns in the room, he can make sure that he himself does not block the view—a situation that is all too common at Association meetings.

Accuracy. When considering accuracy in the preparation of a geographic visual, it is normally assumed that data are numerically correct and that relationships established represent the results of professional research. Rather, the question of accuracy arises concerning the method by which the information is presented. It is possible to produce a number of different impressions on an audience by altering the way in which a given visual is designed. For example, assume that wheat production in 1950 is one unit, and in 1960 four units. A bar chart one inch long for 1950, and four inches long for 1960, would accurately depict production. Also, a wheat sheaf symbol could represent 1950 data, and four identical symbols would accurately show the 1960 figure. However, if a silhouette sheaf one inch high is used for 1950, and another four inches high for 1960, the viewers are being misled. In this case, 1960 production visually appears to be 16 times larger than that of 1950. For extreme exaggeration, two sheaves can be drawn in perspective instead of in silhouette, making the first one inch high and the second four inches high. Now, 1960 production visually appears to be 64 times as large as that of 1950!

There are many ways in which such inaccuracies can creep into geographic visuals. Some are innocuous enough, whereas others are out and out fraud. Every geographer is familiar with the polar distortion of the Mercator chart, but is every one conscious of the effect of altering the vertical scale with respect to the horizontal scale in a graph? Color, boldness, and position of information in a visual can vitally alter the mental impression. In many cases, reasonable distortion is justi-

fied in order to achieve simplicity or clarity. Also, when carefully explained, exaggeration can be used to plead a special interest. But, by and large, geographic visuals should be honest and objective. Visuals that are inaccurate or misleading can result in faulty decisions or erroneous ideas. These latter may be useful tools of the propagandist, but they have no place in a scientific communication.

Review. After completing a set of geographic visuals, the serious speaker will rephrase the question presented in the introduction to this paper and ask himself, "Have I created a good visual presentation?" The proof, of course, is in audience reaction. But, prior to reaching the rostrum, the speaker would do well to thoroughly evaluate his work and look for places where improvements can be made.

In considering each visual he should carefully check the results. Is the visual direct, simple, clear, and accurate? Is the art work ornate when it should be functional? Should it be one visual or several?

The effectiveness of a visual is proportional to the effort that is put into its planning and design. Nothing short of a speaker's best efforts should be acceptable. True, not all individuals possess the same amount of skill, but all can utilize fully the skill they do possess. For example, have all readily available techniques been considered which will improve a visual's efficiency? Many fine standard techniques, and not a few novel ideas, have appeared in recent issues of this journal. Additional information is available in libraries and from a number of commercial organizations that distribute visual materials and apparatus. These are valuable sources of information for any geographer who wishes to evaluate the quality of his graphic work.

Test. Finally, test the entire presentation both verbally and visually. Try it out on a neighbor, the department head, the janitor, even the kindergarten set. It is surprising the interest that non-technically trained people can have in a well presented subject. Do not overlook the questions they may ask or the criticisms they may level. They can be valuable. Above all, avoid the naive belief that most people comprehend things quickly. Generally they do not; not even the smart ones. Therefore, test and retest visuals until they develop the thesis smoothly, deliberately, and at a pace that the audience can assimilate.

Summary. In summary, then, plan visuals carefully. Be direct, be simple, be clear, be accurate. The well executed visual results in audience understanding, thus fulfilling the purpose of any communication, namely, to convey information, impart an attitude, or influence an action. An ineffective visual is costly in time, money, and professional prestige. Worst of all, it fails to achieve communication.

* * *

(1) Haemer, K.W., *Making the Most of Charts, An ABC of Graphic Presentation,* American Telephone and Telegraph Company, New York, 1960, p. 40.
(2) *Ibid.*, p. 20.
(3) Van Pelt, J.R., "Lantern Slides and Such," *American Scientist*, Vol. 38, 1950, pp. 450-455.

SEA INDUSTRIES: A NEGLECTED FIELD OF GEOGRAPHY

Herbert R. Padgett
Jacksonville University

GEOGRAPHERS have in the main neglected what seems to be one of their more rewarding subjects for investigation, namely, sea industries. Since man is a land animal and hence so dependent upon *terra firma* for living space, shelter, and food, the predilection of geographers toward the study of land oriented industries is of course understandable. Yet, the noticeable lack of research into sea related industries stands without justification. For is not the sea a prime highway of transportation, a major source of food for at least some sections of the world, a significant and growing reservoir of useful raw materials, and a frontier for scientific exploration and

research?

Major recent studies. Although several notable contributions to the geography of fisheries have been made during the past two decades, a review of them reveals shortcomings and suggests that an inclusive geographical study of sea industries is yet to come – one that thoroughly explores and interrelates physical, ethnic, cultural, and economic elements. Auguste Dupouy's *La Peche Maritime et le Pecheur en Mer (1),* for example, is mainly sociological in treatment and of a very generalized nature. Although he deals at some length with the fauna, the geographical conditions that are conducive to sea traditions, and the economic problems of packaging and marketing fish, Dupouy's main interest is in the fishermen – their social and economic problems, superstitions, job hazards, and the like. In contrast, Louis Papy's study, *La Cote Atlantique de la Loire a la Gironde (2),* is primarily physical in nature: a description of the coastal morphology, climate, and fauna, together with the habits and migrations of fish. He gives no consideration to fishing as an industry of the area.

As a regional description of a fishing industry, Edward Ackerman's *New England's Fishing Industry (3)* is surpassing. But he pays scant attention to some important historical factors, as well as to the diffusion of traits and techniques. Nor does he effectively relate the industry to the type of coastal zone or economic structure of the region. Another American, Erhard Rostlund, chooses to concentrate on the role of fish and fishing in the primitive economies of North America. The result is an excellent monograph, *Freshwater Fish and Fishing in Native North America (4),* which investigates fish as a natural resource in aboriginal North America and delineates the characteristics of individual species and their distribution. But limitations as a study in the geography of sea industries may be seen in its twofold purpose, namely, to evaluate the importance of fish and fishing economically, and to present evidence that might be useful in culture-historical problems.

Among attempts to relate physical environment to such cultural factors as market, gear, and vessel design, the best is probably *World Sea Fisheries (5),* by the Englishman, Robert Morgan. This ambitious work is very general, however, and is deficient in historical and ethnic influences on fisheries. Nor does it examine any fishery in the light of all the forces that have come to bear upon it.

No geographer has given more time and thorough attention to fishing industries than West Germany's Fritz Bartz. One of the foremost of his several studies on fishing industries is *Fischgrunde und Fischereiwirtschaft an der Westkuste Nordamerikas. (6)* Although touching on natural factors of coastal configuration, nutrient and plankton conditions, and the different species of fish and their migrations, the study is primarily concerned with economic history beginning with Indian fishing, markets and marketing problems, production statistics, and recent trends in economic development.

So much, then, for a resume of major recent studies in the field and their diverse approaches and emphases. The latter are necessarily going to differ according to the geographer's background and interest. What is needed, for the present at least, is more studies. Geographers can concern themselves with approach, content, and the like at a later date.

Present status of the field. One of the best testimonials to the low esteem in which sea industries are held in American geography appears in the volume entitled *American Geography: Inventory and Prospect. (7)* Whereas several pages of this work are devoted to marketing geography and recreational geography, and a chapter is allocated to agricultural, mining, manufacturing, and transportation geography, one brief sentence is all that can be afforded for fisheries, namely, "E.A. Ackerman's monograph on the fishing industry of New England suggests another type of contribution a geographer can make to a single segment of the economic life." *(8)*

Perhaps a lack of literature concerning the physical character of water areas and the ecology of marine life was a discouraging factor to geographers in preceding years. If this were true, it is no longer so. Although man's knowledge of processes affecting the sea environment is small in proportion to what is yet to be discovered, there is, nevertheless, a considerable amount of material available today on specific areas. Atlantic waters adjacent to both Europe and North America, sections of

the North American Pacific Coast, and Japanese waters are a few of the more intensively studied regions. Several excellent publications dealing with oceanography are now in print. Indeed, there is available enough material to give the geographer a good beginning in treating the physical base in his study. By gleaning carefully the information on his locality, and augmenting these data with his own personal observations, he can be well on his way to developing a proper study of a sea industry.

* * *

(1) Dupouy, Auguste, *La Peche Maritime et le Pecheur en Mer*, Librairie Armand Colin, Paris, 1955, 116 pp.

(2) Papy, Louis, *La Cote Atlantique de la Loire a la Gironde*, Publications de L'Universite de Bordeaux, 1941, 302 pp.

(3) Ackerman, Edward A., *New England's Fishing Industry*, University of Chicago Press, Chicago, 1942, 303 pp.

(4) Rostlund, Erhard, *Freshwater Fish and Fishing in Native North America*, University of California Publications in Geography, Vol. IX, University of California Press, 1952, 313 pp.

(5) Morgan, Robert, *World Sea Fisheries*, Pitman, New York, 1956, 307 pp.

(6) Bartz, Fritz, *Fischgrunde und Fischereiwirtschaft an der Westkuste Nordamerikas*, Schriften des Geographischen Instituts der Universitat Kiel, Kiel, 1942, 174 pp.

(7) James, P.E. and Jones, C.F., eds., *American Geography: Inventory and Prospect*, Syracuse University Press, Syracuse, 1954, 590 pp.

(8) *Ibid.*, pp. 256-257.

NEEDED: GEOGRAPHICALLY-TRAINED TOURIST GUIDES

Valene L. Smith

Los Angeles City College

AMERICAN travelers in foreign countries have had available the facilities to acquire a penetrating insight into the character of other lands and peoples as a result of the competency of the trained guides who escorted them. Nations limited in natural resources have long since pyramided tourism into an industry of national importance, thereby providing employment for their citizens and attracting valuable foreign exchange. Even the USSR, with its impressive resources, recognized some time ago the value of attracting tourists, both for financial gain and for propaganda purposes. Its comparatively smooth-running Intourist organization is today handling nearly the maximum influx of visitors commensurate with existing hotel facilities.

The United States in 1960 inaugurated Visit America Year, and has subsequently sought to attract foreign guests through publicity and by expediting visa applications. Most recently, the plan to establish Tourist Information Offices in selected overseas cities indicates our awakening to the multiple advantages of entertaining foreign travelers. Yet, as a nation, we are poorly prepared to receive tourists and to accord them the educational services we ourselves receive in their homelands.

World survey of tourism. As a topic of professional and, possibly, national interest, the writer has conducted a survey of the various countries of the world to ascertain those that supervise sight-seeing guides, either by license, examination, or other governmental regulation; and, in particular, the extent to which geography is incorporated in their requirements and training programs. Techniques employed in the survey were three-fold: (a) to personally visit government agencies, when possible, and interview responsible officials (the USSR and its satellites, Japan, and southeastern Asian countries were so contacted); (b) to poll other nations by written questionnaire; and (c) to ascertain the policies of local employers, specifically the travel agents handling the largest volume of foreign travel, in areas where the government is not directly responsible for licensing guides. Significant conclusions, based on the survey results, are presented below.

First, the response to the survey was gratifyingly high, reflecting national interest in tourism. Even areas which might be deemed troubled, as for example Laos and Cuba, sent replies, indicating that when the domestic situation is conducive to travel, they will undertake licensing of tourist guides. Only those districts which might be labelled newly developing, such as portions of the Caribbean, South Pacific, and the West African republics, failed to respond.

Second, countries where tourism is well established, and specifically those maintaining national tourist offices in the United States (i.e., major European countries, Japan, India, Australia, New Zealand, and South and East Africa), responded in full and in great detail.

Third, fully 50 per cent of those responding in (2), above, indicated some type of government supervision by requiring of its accredited guides either: (a) a satisfactory score on a competitive examination; or (b) meritorious completion of a training course, ranging in duration from 30 hours to more than 3 months according to country; or (c) a personal interview, as in the case of professional people (often school teachers) seeking summer employment.

Fourth, licensing of guides is a common procedure. Licenses are seldom valid for life. Usually, they are renewable annually or at some longer interval. License fees are moderate, typically less than the local currency equivalent of U.S. $5.00.

Fifth, knowledge of local history and geography, plus fluency in one or more foreign languages, are deemed most important for trained and/or licensed guides; desirable secondary subjects include, among others, the arts, archeology, and economics. Japan provides a good illustration. The Ministry of Transport conducts competitive examinations which consist of three parts — written questions, oral interview, and evaluation of recommendations. Successful candidates are then eligible for membership in the highly select Japan Guide Association. A substantial portion of the written examination is specifically geographic. Applicants must define geographic terms (in English, or another selected foreign language, as well as in Japanese) and write essay type answers in English to questions concerning mineral resources, crop cultivation, and general land use. The technical level of the examination approximates that of upper-division regional geography college courses offered in the United States.

Sixth, and lastly, where selection of guides is made by travel agents, rather than official government sources, the focus is usually less academic. Satisfaction of the client through efficient, rather than informative, service is the business goal. The average American traveler overseas is seldom an astute observer; consequently, he does not demand, nor is he provided with, the best guides available. Yet the travel agent, because of his influence and respected civic position, usually can upgrade his services when occasion demands.

Implications of the survey to geography. The implications of the above survey should have significance to the American traveling public, and especially should offer some important suggestions to American geographers. Whether touring at home or abroad, vacationers are investing time and money, and the traveler is entitled to a reasonable return. Geographic ignorance of everything save superficialities is so characteristic of our citizenry, and is so well known, that further comment would be redundant. If there is one thing on which geographers agree, it is that their discipline provides the broadest base for understanding a country, its peoples, and their problems. Why, therefore, does not the profession *do* something about it?

A spokesman for the travel industry suggested, in an article much reprinted and discussed *(1)*, that we in America teach "Travelology." The writer would suggest, instead, that we teach Geography for Travel. Los Angeles City College has been successfully offering such a curriculum for 10 years, including courses in the United States, Canada and Alaska, Latin America, Europe, and the Far East. The instructor in each course is professionally trained in geography and has had recent travel experience in the area. Tradition bound geographers may question whether the descriptive and generalized approach employed in such courses merits college credit. In reply, one might cite the anthropologists, who concur that a facet of American national character is well stated in an industrial slogan: "It's results that count." The broad function of our educational system is to serve the best interests of the taxpayers who support it, rather

than the research projects of individual faculty members.

Properly prepared for travel, the American would more fully understand and prize his own land. Abroad, he would be equipped to ask intelligent questions of his geographically-oriented guides, and would profit more from his trip. Further, he would create a better impression and thereby enhance the prestige of our nation.

Geographers could, and should, train the requisite corps of sight-seeing guides needed to escort both our own vacationers and the ever increasing numbers of foreign guests through the United States. The latter is consistent with the national policy of this decade. The project would assist our graduate students by providing part-time and summer employment, and likewise would supply them with much needed field experience. The travel industry, now commonly rated third in importance in our total national economy, would willingly absorb the geographic trainees and welcome them as an asset to the business.

Such training could be provided at minimal expense, utilizing the services of regional specialists in geography who are already teaching. Such a program would enhance our educational status in the eyes of the rest of the world, would provide additional positions for geographers, and would promote national recognition of the importance of our discipline.

* * *

(1) Vogels, R.J., "Let's Teach Travelology," an address by the World Director of Public Relations for KLM Royal Dutch Airlines to the International Air Transport Association, Hamburg, October, 1958.

ANNUAL MEETING
of the
ASSOCIATION
OF
AMERICAN GEOGRAPHERS

Miami Beach, Florida

April 22 - 26, 1962

ASSOCIATION AFFAIRS

ACTIONS OF THE AAG COUNCIL, EAST LANSING, AUGUST 28, 1961

(LAST MEETING, 1960-61 COUNCIL)

The meeting was called to order at 9:15 a.m. by President Jan O.M. Broek. All members were present or represented except Ralph Frank,, Robert Marple, Marion Marts, John Morris, Paul Siple, and Wilbur Zelinsky. Guests present for all or part of the meeting included Arch Gerlach, Phyllis Griess, Richard Kreske, Donald MacPhail, and John Ray. The following actions were taken by the Council:

1. Accepted the Treasurer's report for the period January 1 through June 30, 1961.

2. Directed that abstracts of papers on the program of the 57th Annual Meeting be printed in the *Annals*, and that extra abstracts printed for a proposed *Proceedings* volume be included instead in a pamphlet with the title page used in the *Program* and with the same title on the cover, this pamphlet to be put at the disposal of the Secretary.

3. Set the price of the second *Annals* Map Supplement, entitled The Floor of the World Ocean, at 50 cents for single copies and 25 cents in lots of 100 or more.

4. Stated for clarification that the Editor of the *Annals* will exercise final authority over Map Supplements in consultation with the Map Supplement Editor, except that prices for Supplements will be set by the Council after recommendation from the Map Supplement Editor and the Secretary in the case of each map.

5. Requested the Publications Committee to: (1) review the revision of the pamphlet, *Careers in Geography*, prior to republication; (2) review in manuscript, for possible AAG use, the bibliography of New York and New Jersey geography now being prepared by the New York-New Jersey Division; (3) carry out periodical evaluation of the Association's publications.

6. Suggested that the forum character of *The Professional Geographer* be emphasized by including the word in the subtitle.

7. Directed that each Monograph carry the names of the Editor and members of the Editorial Board responsible for that volume, but not the names of officers or previous Editors or Board members.

8. Agreed that a full-time executive should be employed; that he should not function as, nor be titled, a director; that he should expand on a full time basis the present part time activities of the Secretary; that there should be presented at the Association's Business Meeting, for general discussion, the Council's view that those activities should be extended on a broad scale to include the promotion of the Association and the profession vis-a-vis other disciplines and internationally; and that the new Council should consider the matter further in the light of the Business Meeting discussion.

9. Nominated the following candidates for elective committees: Nominating Committee – Walter Kollmorgen, Louis Quam, Joseph Spencer; Honors Committee – Norton Ginsburg, Edward Ullman, J. Russell Whitaker; Credentials Committee – Robert Klove.

10. Appointed A. Phillip Muntz and J. Granville Jensen as members of the Resolutions Committee, to serve with Charles Hitchcock who was appointed Chairman previously.

There being no further business, the Council adjourned at 6:10 p.m.

Meredith F. Burrill, Secretary

ACTIONS OF THE AAG COUNCIL, EAST LANSING, SEPTEMBER 1, 1961

(FIRST MEETING, 1961-62 COUNCIL)

The meeting was called to order at 8:30 a.m. by President Gilbert F. White. All members were present or represented except Robert Marple, Marion Marts, and Evelyn Pruitt. Phyllis Griess was an invited guest. The following actions were taken by the Council:

1. Approved a resolution required for the formal transfer of certain securities already sold.

2. Accepted invitations to hold the 1966 meetings in Toronto, and the 1967 meetings in St. Louis.

3. Laid out the following steps to be taken, and assigned responsibility for them, in order to carry out the plan to employ a full-time executive: (1) drafting of a more precise statement of duties; (2) solicitation of comment and suggestions from the membership; (3) exploration of sources of funds; and (4) consideration of possible candidates.

4. Deferred consideration of recommendations for abolition of the office of Honorary President, and for establishment of steering committees to supervise groups of committees.

5. Dismissed, with thanks, the ad hoc Subcommittee on Proposed New Management Structure.

6. Continued the ad hoc Subcommittee on Ways and Means, and added Siple to its membership.

7. Named as the 1961-62 Executive Committee: White, Gerlach, Burrill, Deasy, Kniffen, Lounsbury.

8. Directed that abstracts of annual meeting papers be printed in the *Annals*.

9. Reappointed Richard E. Harrison as *Annals* Map Supplement Editor.

10. Added 25 cents per shipment to the price of unfolded copies of the second map supplement.

11. Referred to the Publications Committee an inquiry from a private publisher concerning possible authors of a guidance manual.

12. Authorized the Secretary to negotiate a contract for reprinting *American Geography: Inventory and Prospect* along general lines proposed by the Syracuse University Press, and requested the Publications Committee to consider the preparation of a sequel to the book.

13. Adopted resolutions commending Walter and Johanna Kollmorgen, Andrew Clark, Clarence Jones, and Herman Friis upon completion of their contributions to the publications program.

14. Discontinued the Committees on Air Force ROTC, Geographers in Business, and Mass Data Processing; reactivated the Cartography Committee and stated its duties; added new Committees on Cultural Geography, Liberal Education, and Research in Foreign Aid and Policy, and appointed Committee members for the year.

15. Approved resolutions proposed by the Census Advisory Committee (1) endorsing a pending proposal for five-year intervals between population censuses; (2) endorsing a proposal for a census of transportation; (3) endorsing the need for a land use inventory of the United States (assignment of responsibility for recommendations on this point will be made by the Executive Committee); (4) expressing appreciation to the Bureau of the Census for services to the geographic profession through its map and small-area data publication program; and (5) urging priority for measurement and publication of MCD areas.

16. Requested the Committee on Chinese Geographical Literature to present concrete recommendations for a journal on Chinese geography after a pilot study as proposed, and endorsed the Committee's idea for a summer institute.

17. Requested the Constitution and By-laws Committee to draft an amendment removing the requirement of experience,

after a degree in geography, for full membership.

18. Commended the Placement Committee for effective and unselfish service.

19. Approved a research grant to P.P. Karan in partial support of a study in Nepal, and suggested to the Research Grants Committee that added weight be given to proposals that might lead to larger projects.

20. Authorized the Committee on Liberal Education to explore the proper role of geographic thought and skills in liberal education, and to suggest ways of improving the quality and contributions of geographic teaching in liberal arts institutions.

21. Authorized the Committee on Cultural Geography to design and carry out a program for improving teaching and research in cultural geography by means of a summer institute for faculty.

22. Authorized the Committee on Research in Foreign Aid and Policy to advise with Federal agencies as to types and organization of research which would strengthen the grounds for forming foreign policy and programs for foreign aid.

23. Allocated $1,500 for travel to meetings by members of the new committees.

24. Indicated interest in a proposal by the Verband Deutscher Bernstgeographer for joint discussions at the next International Geographical Congress.

25. Approved a revised letterhead.

There being no further business, the Council adjourned at 6:25 p.m.

Meredith F. Burrill, Secretary

AAG COMMITTEES AND EDITORIAL BOARDS 1961-62*

Executive Committee:
White, Chairman, Gerlach, Burrill, Deasy, Kniffen, and Lounsbury.

Elected Committees

Credentials:
R.A. Harper ('62), Chairman, Bjorklund ('63), and Klove ('64).

Honors:
Ullman, Chairman, Ginsburg, and Whitaker.

Nominating:
Kollmorgen, Chairman, Quam, and Spencer.

Appointed Committees

AAG Fellowships:
Olmstead, Chairman, Bacon, G.W. Hoffman, E.C. Mather, and Phelps.

Cartography:
Dahlberg, Chairman, R.E. Harrison, Heath, Jenks, MacKay, and R.L. Williams.

Census Advisory:
B.J. Epstein, Chairman, Berry, R.R. Boyce, Forstall, Haglund, Hart, Latham, Loeben, Morrill, Salisbury, Thrower, Tobler, Warntz, and Wray.

Chinese Geographical Literature:
Herman, Chairman, Boxer, K.S. Chang, Cressey, Ginsburg, Hsieh, Hu, Hung, Murphey, Spencer, Wheatley, and ex officio Kitigawa.

Climatology:
D.H. Miller, Chairman, W. Barrett, Blumenstock, Bryson, D.B. Carter, Hare, Howe, Lahey, Trewartha, and Van Valkenburg.

Constitution and By-Laws:
Rose, Chairman.

Cultural Geography:
Kniffen, Chairman, Hart, and E.C. Mather.

Education (Joint with NCGE):
Kohn, Chairman, Bacon, James, and Olmstead.

Exchange of Publications:
Harris, Chairman, W.W. Atwood, Felland, Nash, and P.L. Wagner.

Finance:
W.W. Atwood, Chairman, Dykes, and Nystrom.

* Expirations of terms on rotating committees are shown in parentheses.

Field Trip – Miami Beach:
Becker, Chairman, Fuson, Pierson, and J.R. Ray.
Foreign Aid and Policy Research:
Nystrom, Chairman, Ackerman, Keller, and Ullman.
Geographers in Government:
Friis, Chairman, W.H. Bailey, L.D. Black, Chesnutwood, Pearcy, Pico, V.M. Throop, and Trueblood.
International Fellowships:
Melamid, Chairman, Illick, McNee, and Van Dongen.
Liberal Education:
Lounsbury, Chairman, Ackerman, H.P. Bailey, A.W. Brown, Brush, Church, Herman, McCarty, and Murphey.
Local Arrangements – Denver:
Crain, Chairman, Griffiths, Hawkes, Hereford, Lemon, MacPhail, and Schierbrock.
Local Arrangements – Miami Beach:
Kreske, Chairman, Dambaugh, F. Day, J.R. Ray, and Rothwell.
Local Arrangements – Syracuse:
James, Chairman.
Membership:
Schwendeman, Chairman, Baldwin, Fernstrom, Flierl, Howe, Knox, Kramer, Olmstead, H.F. Raup, and T.R. Smith.
Military Geography:
Peltier, Chairman, A.W. Booth, Buckholts, Jackman, R.B. Johnson, T.R. Smith, and Trueblood.
New Management Ways and Means:
Nystrom, Chairman, W.W. Atwood, and Siple.
Placement:
Sweed, Chairman, Barry, Burtis, Didcoct, B.F. Holmes, R.S.S. Lee, Rheumer, and Silvernail.
President's:
White, Chairman, Broek, Siple, Jones, Harris, Quam, Burrill, Gerlach, and Adkinson.
Program – Denver:
Ristow, Chairman, Arbingast, Crain, Culbert, Diem, Helburn, and Richard Murphy.
Program – Miami Beach:
Roterus, Chairman, J.G. Jensen, Kreske, Lowenthal, Ristow, Seeley, and E. J. Taaffe.
Publications:
Kniffen, Chairman, Griess, Hirt, Platt, Shear, T.R. Smith, and Pruitt.
Regional Divisions:
Gerlach, Chairman, Frank, Marple, Marts, McNee, J.W. Morris, Pierson, J.L. Taylor, Warman, and Zelinsky.
Research Grants:
Cressey ('62), Chairman, Prunty ('63), and K.H. Stone ('64).
Status and Trends:
Augelli, Chairman, W.B. Fairchild, Melvin Nunley, Pearcy, Ransome, and John Thompson.

EDITORIAL BOARDS

Annals:
J-H Chang, W.L. Garrison, L. Hewes, W.A.D. Jackson, Kline, D.H. Miller, Parsons, and N.J.G. Pounds.
Monograph Series:
T.R. Smith ('62), Editor, Brush ('63), Glacken ('64), and Nicholson ('65).

TREASURER'S REPORT

Submitted herewith is a summary statement detailing fiscal operations of the Association of American Geographers during the period January 1, 1961 to June 30, 1961, together with an analysis of the comparative mid-year financial situation of the organization during the period 1959-1961. The data are self-explanatory. Additional details on financial aspects of the Association may be obtained from the Treasurer.

The assistance so willingly rendered by the Secretary, the Central Office staff, the Finance Committee, the bookkeeper-auditor, and the Association's broker is acknowledged with deep appreciation.

George F. Deasy, Treasurer

RECEIPTS AND DISBURSEMENTS

January 1, 1961 to June 30, 1961

INCOME

1. *Normal Operations*			
Dues	27,195.53		
Regular Periodical Publications	7,609.01		
Securities and Bank Interest (½)	390.74		
Other	231.25		
		35,426.53	
2. *Special Activities, Except Custodial*			
Special Publications	3,336.33		
Securities and Bank Interest (½)	390.73		
Donations Received	10,000.00		
		13,727.06	
3. *Custodial Activities (Deferred Credit)*			
National Science Foundation			
Grant No. 10309 (to C.D. Harris)		252.17	
Total			$49,405.76

EXPENDITURES

1. *Normal Operations*			
Central Office	8,651.87		
Officers, Regional Divisions, Committees, etc.	2,429.91		
Annals	8,249.34		
Professional Geographer	2,117.80		
		21,448.92	
2. *Special Activities, Except Custodial*			
Special Publications	3,421.00		
Others	0.00		
		3,421.00	
3. *Custodial Activities*			
Transferred to C.D. Harris		252.17	
EXCESS OF INCOME OVER EXPENDITURES			
1. *Normal Operations*	13,977.61		
2. *Special Activities, Except Custodial*	10,306.06		
		24,283.67	
Total			$49,405.76

ASSETS

As of June 30

	1959	*1960*	*1961*
Cash (checking account)	3,531.53	8,740.87	21,353.02
Cash (savings account)	5,735.78	10,102.07	10,321.05
Petty Cash Fund	75.00	50.00	50.00
Securities (purchase price)	37,310.69	37,310.69	49,551.24
Cash (with broker)	182.22	.....	5,204.19
Total Assets	46,835.22	56,203.63	86,479.50 *(1)*

(1) Excluding value of office equipment and supplies, inventories of publications, and increase above purchase price of securities. Net worth including these additional assets, as of June 30, 1961, is estimated at approximately $117,000.00.

PROGRESS REPORT OF THE JOINT COMMITTEE ON EDUCATION

Through their Joint Committee on Education, the Association of American Geographers and the National Council for Geographic Education have joined in an effort to improve the teaching of geography in high schools. A grant of $55,000 has been received from the Fund for the Advancement of Education to support the early stages of the program, and work now is under way.

The Joint Committee is composed of the following: Co-Chairmen Clyde Kohn, State University of Iowa, and Gilbert F. White, The University of Chicago; Norman Carls, University of Pittsburgh; Preston James, Syracuse University; Philip Bacon, Columbia University Teachers College; Clarence W. Olmstead, University of Wisconsin; Mary Viola Phillips, University of Pittsburgh; and Samuel Van Valkenburg, Clark University.

The general program is outlined in a statement prepared by the Joint Committee last year. The statement, modified slightly to suit the present time schedule, is given below.

Need for improvement in geography teaching in the high school. Recent studies of the status of geography throughout the schools of the nation show that while there is increasing awareness of the basic importance of elementary geographic ideas and skills, and while numerous school systems have expressed interest in making large-scale improvements in their geography teaching, the rate of improvement is likely to be distressingly slow unless certain unorthodox steps are taken to make available these ideas and skills quickly on a wide base and in such form that teaching may be affected promptly. Without discounting the value of the urgently needed new textbooks, of changes in school curricula, and of revisions in teacher-training efforts, it would seem wise at this stage to attempt to plan a high school course which could be produced on tape for use on film and television. Rather than to do away with the teacher, the object would be to suggest fruitful ways of assisting the teacher through tape and associated study guides, map and globe materials, and other laboratory materials. The acute need for disciplined training in looking at our complex world from a geographic point of view, and the rapidly growing body of geographic thought that is susceptible to being taught at the high school level make the time ripe.

Geography is a subject which lends itself particularly to the use of pictorial, graphic, and cartographic material. The fact that it is being taught in both the social studies and general science and conservation curricula makes the design of one set of materials a special problem.

The problems, national and international, which face the United States demand in unprecedented degree a citizenry that is informed about the peoples and lands of the world.

The Association of American Geographers and the National Council for Geographic Education have joined in a common enterprise. Our Joint Committee is authorized to act for both groups in planning the proposed new program. We would hope to move toward it in five separate steps.

Step 1. Definition of basic ideas and skills. As a first step the AAG-NCGE Committee on Education would appoint a working group, including high school as well as university teachers and research men. The co-chairmen of the Joint Committee would serve as ex-officio members. The group would define the basic ideas and skills which it is believed could be taught at the high school level. This would not take the form of a course design, but it would indicate a series of items which might well be incorporated into a course, and would suggest ways in which they might be taught effectively.

To accomplish this aim would require two intensive working sessions of about one week's duration with a period of several months in between to revise and specify ideas. Out of the second working session would come a draft statement.

Step 2. Review of the draft statement. Once a draft statement had been prepared, it would be circulated to a much larger group for comment. At a conference these comments would be reviewed. The initial

working group would be enlarged for this purpose and it would be expected that it would include a geographer who would have been selected as a suitable person to carry the major burden of organization and instruction in the event that the effort reaches the production stage. The emphasis would still be on major ideas and promising methods and not on an agreed curriculum; we do not want to water down new and challenging ideas by seeking committee agreement.

Step 3. Experimental stage. Anticipating the results of the review conference, we would hope to have arranged with several school systems to undertake, during some part of the 1962-63 school year, to experiment with the ideas and methods which emerge from that conference. For example, we have reason to think that the systems of Waterloo, Iowa, and Chicago, Illinois, might be open to experiments with their newly established classes. The Midwest Program on Airborne Television Instruction offers another possibility. We think there will be no lack of interested school systems. In each case, we would arrange for collaboration between the cooperating schools and a nearby cooperating university.

At this point, the geographer who would be carrying the burden of responsibility would be on the job. At the end of the year, there would be a session of the review conference at which there would be appraisal of the trial runs. Obviously, these would not be tests of the kind of tape which might be produced. They would, however, establish the feasibility and teaching needs for dealing with such new concepts as those which have emerged from modern geophysics and central place theory, to name only two fields.

Step 4. Detailed planning. The conclusion of step 3 should indicate whether or not there is likely to be high return from taking the next and most costly step. Here, we think we have learned something from the experience of those involved with the physics, chemistry, and biology courses. The preliminary trials should have shown us the most promising lines along which to move. At this writing, we would anticipate that it would be necessary to place responsibility for detailed planning in the hands of one person, as director, with an advisory committee appointed by the two organizations. The job would be likely to continue two years, and to claim the help of the best minds in the field. The director should be liberated from other duties.

Step 5. Production. Once the detailed planning is nearing completion, contracts could be negotiated with one of the production companies to make the tape. We would be prepared to have the work filmed so that it might be used in discrete parts, but would want it designed and organized so that it could be used as a complete course.

Estimated cost. Our preliminary cost estimates assumed that the fifth step would be carried entirely at the expense of the producer. The fourth stage would require a large amount of design and planning, using classroom situations where appropriate. New map materials, cheap globes and other special laboratory materials would have to be developed. Our first estimate is that it would cost on the order of $700,000.

The preliminary trial should be relatively inexpensive because of the interest of the cooperating school systems. Assuming modest grants to each collaborating system, and a small amount of coordinating effort, they should cost not more than $55,000.

The first and second steps should be financed as a unit. Assuming some staff assistance and the payment of travel expenses for participants in the three working sessions, the cost should run about $45,000.

Procedure. If only the first three steps were to be completed, they would result in national discussion, new publications, and live experiments which would have large value in themselves. If we were to be justified in moving into the fourth step, we would expect to seek additional support upon the basis of the results to that date.

In terms of probable effects upon modes of thought about the world, we believe that investment in this effort at this time offers large returns.

Work on steps 1 and 2 is under way. William D. Pattison of the University of California, Los Angeles, has been appointed as full-time director. Members of the working group described under step 1 are: Edward Biller, Supervisor of Geography, Baltimore Secondary Schools; William Garrison, Professor of Geography, Northwestern University; Norton S. Ginsburg, Professor

of Geography, University of Chicago; Edward Hammond, Professor of Geography, University of Wisconsin; Stephen Jones, Professor of Geography, Yale University; Fred Kniffen, Professor of Geography, Louisiana State University; Harold McCarty, Professor of Geography, State University of Iowa; Clyde Patton, Professor of Geography, University of Oregon; Ross Pearson, Professor of Geography, University of Michigan; Jewell Phelps, Professor of Geography, George Peabody College; Herbert Petersen, Teacher, New Trier High School; and Henry J. Warman, Professor of Geography, Clark University.

Inquiries about the Joint Committee's program should be addressed to William Pattison.

Gilbert F. White, Co-Chairman
Joint Committee on Education

SUBMITTAL OF APPLICATIONS FOR RESEARCH GRANTS

Attention is called to the provision in Section 3 of the Bylaws of the Association which reads, "Proposals for research grants shall be submitted to the Research Grants Committee, through the Secretary, by December 1." Consideration of proposals will be facilitated by submittal of four copies; legible carbon copies are satisfactory. Research grants can be made from monies in the Association's General Research Fund and Atwood Research Fund.

Meredith F. Burrill, Secretary

REPORTS AVAILABLE

The following AAG Committees for the year 1960-61 have submitted reports to the Secretary: *Annals* Map Supplement, Chinese Geography, Credentials, Finance, Honors, International Fellowships, Local Arrangements (Miami, 1962), Military Geography, Placement, Proposed New Management Structure (ad hoc), Publications, and Ways and Means for Proposed New Management Structure (ad hoc). Reports also have been received from the Monograph Series Editorial Board and the AAG Delegate to the ACLS.

A limited number of copies of these reports are available to AAG members free upon request to the Central Office.

ALBERT J. NYSTROM MEMORIAL FELLOWSHIP

The Albert J. Nystrom Memorial Fellowship, established in memory of Albert J. Nystrom by the company which he founded, is intended to encourage graduate students who seek to improve the teaching of geography in elementary and secondary schools.

It is open to students, both in Canada and the United States, who have (1) completed all or most of the language and course requirements leading to a Doctor of Philosophy or Doctor of Education degree, and (2) prepared an acceptable program of research and writing which will lead to a dissertation in some aspect of the teaching of geography.

The fellowship award is $2,400 for one year; it normally will not be granted to a given individual for a second year. The recipient is expected to devote the fellowship period largely to research and writing of the dissertation.

The recipient may select the Department of Geography in which he wishes to pursue his advanced study, provided (1) the Department selected offers opportunities for advanced study in the teaching of geography, or (2) the School of Education, in cooperation with the Department of Geography, offers such opportunities.

The A.J. Nystrom Company stands ready to assist in publication of the research results if it seems suitable to do so.

Application blanks and instructions should

be requested from: Secretary, Association of American Geographers, Central Office, 1785 Massachusetts Ave., N.W., Washington 6, D.C.

Completed applications and supporting materials must be received at the above office by March 1, 1962. The award will be announced before April 1, 1962.

Clarence W. Olmstead, Chairman
Committee on Nystrom Fellowship

COPIES OF *PROGRAM* AVAILABLE

A limited supply of the 58-page *Program* of the 57th Annual Meeting of the Association of American Geographers, held at East Lansing on August 28 to September 1, 1961, is available at the Central Office of the Association free of charge to members.

The *Program* contains abstracts of all papers presented at the meeting. For those who were not in attendance at East Lansing, the *Program* furnishes a means of keeping up-to-date with current research in geography.

CALL FOR PAPERS FOR THE 1962 ANNUAL MEETING

The program for the April 22-26, 1962, Annual Meeting of the Association at the Saxony Hotel, 3201 Collins Ave., Miami Beach, Florida, will consist largely of voluntarily contributed papers. In order to perform more adequately its task of selecting papers and arranging the program, the Program Committee will consider only papers that are submitted in completed form. Papers should not exceed 2,300 words, and should be typewritten and double-spaced. Maps should accompany the text, but either sketch or finished maps are acceptable when the paper is submitted. Each paper should be accompanied (1) by a statement of the visual equipment that will be required, if any, and (2) by an abstract of not more than 250 words, for use in the printed program. The author should be sure that no errors, typographic or otherwise, occur in the abstract since it will be reproduced in the program under the author's name.

Rules governing the preparation of an abstract are:

1. It must be typed and submitted in triplicate.
2. The original must be on good weight bond paper, measuring 8½ by 11 inches.
3. The name of the author typed in capital letters, together with his affiliation or address, must appear on the upper left margin of the first page.
4. The title of the paper, typed in capital and lower case letters and underlined, should be placed two lines below the author's name, beginning at the left margin of the first page.
5. The body of the abstract should begin two lines below the title and should be typed with paragraph indentations, double spacing, and reasonably wide margins.

If your paper can be classified as appropriate for more than one topical category, please indicate the type of session in which you would prefer to deliver it. The time limit for delivery of each paper is 15 minutes. No person may present more than one paper. Papers not intended for presentation in person will not be listed by titles in the program.

The Program Committee will appreciate receiving suggestions from the membership for planning the Miami Beach meeting. Suggestions may be submitted to any member of the Committee: J. Granville Jensen, Oregon State University; Fred B. Kniffen, Louisiana State University; Richard D. Kreske, University of Miami; David Lowenthal, American Geographical Society; Walter W. Ristow, Library of Congress; Victor Roterus, U.S. Department of Commerce; Jay Steward Seeley, Northern Virginia Center, Arlington, Va.; and Edward J. Taaffe, Northwestern University.

Texts and abstracts of papers must be in the hands of the Program Committee Chairman, Victor Roterus, 5611 Overlea Rd., Washington 16, D.C., not later than February 1, 1962.

Victor Roterus, Chairman
1962 Program Committee

ADDRESS CHANGES FOR ASSOCIATION MEMBERS AND ADDRESSES OF NEW MEMBERS

The following list of address changes for members of the Association of American Geographers, and addresses of new members of the organization, has been prepared by Miss Grace Powell, Graduate Assistant in the Department of Geography at The Pennsylvania State University, from data supplied by Central Office personnel of the Association. The list updates information contained in the 1961 edition of the *Handbook-Directory* and that contained in the May, 1961 issue of *The Professional Geographer*.

The list will henceforth be printed in the November, rather than in the May, issue. It is believed that the greatest number of address changes occur at the beginning of the academic year, and that these changes will be more quickly available to members of the Association if the list appears in November.

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New 1961 printing with corrections by the author —

THE NATURE OF GEOGRAPHY

by

RICHARD HARTSHORNE

xv and 504 pp., $3.00

Central Office, Association of American Geographers

1785 Massachusetts Ave., N.W. Washington 6, D.C.

ANNOUNCEMENTS AND REPORTS

VISIT OF SOVIET GEOGRAPHERS TO THE UNITED STATES

Point 5 of Section II of the Soviet-American agreement on exchange in scientific, technical, and cultural fields for 1960-1961, signed by the governments of the United States and the Soviet Union on November 21, 1959, provided for an exchange of delegations of geographers "of four to six persons for three to four weeks." The Academy of Sciences of the USSR and the Association of American Geographers, with the support of the National Science Foundation, agreed to act as sponsors.

Under this program, a group of six Soviet geographers visited the United States from June 27 to July 23, 1961. Chauncy D. Harris, representing the Association of American Geographers, accompanied them throughout their trip. The six Soviet geographers were Academician I.P. Gerasimov (Chairman), Director of the Institute of Geography of the Academy of Sciences of the USSR, Chairman of the Soviet National Committee on Geography, and a Vice President of the International Geographical Union (soil geography); Professor K.A. Salishchev, University of Moscow, Chairman of the Commission on National Atlases of the International Geographical Union (cartography); Dr. F.F. Davitaia, Deputy Director of the Hydro-Meteorological Service of the USSR (agricultural climatology); Professor G.A. Mavlyanov, Director of the Institute of Hydrogeology of the Uzbek Academy of Sciences in Tashkent (hydrogeology and loess deposits); Professor V.A. Krotov, Vice Director of the Geographic Institute for Siberia and the Far East, Irkutsk (regional resources of Siberia); and V.P. Kovalevskii of the Institute of Geography of the Academy of Sciences of the USSR (agricultural geography of the United States).

The purpose of the trip was to become acquainted with American programs of research and education in geography and with the study, utilization, and conservation of natural resources. The visitors saw something of the West, the Middle West, the South, and the East. H. Bowman Hawkes and Albert L. Fisher, of the University of Utah, planned the geographic field trips in the West; Edward B. Espenshade of Northwestern University, and John W. Alexander and Kirk H. Stone of the University of Wisconsin, the Middle West; and J. Sullivan Gibson of the University of North Carolina, and Robert E. Cramer of East Carolina College, the South. Meredith F. Burrill, Secretary of the AAG, arranged the program in Washington, D.C.; and Charles B. Hitchcock and O.M. Miller, of the American Geographical Society, in New York.

Unfortunately, shortage of time necessitated covering long distances by air. Automobile trips permitted detailed observations in the Salt Lake area; a traverse from Salt Lake City, through the Grand Teton and Yellowstone national parks, to Billings, Montana; observations in the Chicago area, and in Platteville and Madison, Wisconsin; a traverse across northern Illinois, from Chicago to the Mississippi River, and across southern Wisconsin; a visit to the Tennessee Valley Authority; and a traverse across eastern Tennessee and North Carolina, from the Great Valley and the Great Smokies, through the Piedmont, to the Coastal Plain. A trip by rail was made from Washington, D.C., to New York City.

In Washington, D.C., members of the group had conferences with numerous officials in governmental agencies involved in geographic research or in resource-use programs, including, among others, the Geography Division of the Bureau of the Census, Office of Area Development of the Department of Commerce, Office of Geography in the Department of the Interior, Map Division of the Library of Congress, Reclamation Service, National Park Service, Forest Service, Soil Conservation Service, Office of Climatology of the Weather Bureau, Geological Survey, and the land use section of the Department of Agriculture. In addition, the visitors conferred with per-

sonnel in the National Geographic Society and Resources for the Future.

The following academic centers were visited: University of Utah, Utah State University, University of Chicago, Northwestern University, Wisconsin State College (Platteville), University of Wisconsin, and the University of North Carolina (both Chapel Hill and Raleigh). The American Geographical Society was host to a series of conferences in New York.

In Washington, D.C., after a special luncheon of the Middle Atlantic Division, chaired by John L. Taylor, the following papers were presented in three concurrent sessions: "The Study of Natural Resources in the USSR," by I.P. Gerasimov; "Cartography in the USSR," by K.A. Salishchev; and "Agricultural Climatology," by F.F. Davitaia. V.P. Kovalevskii spoke at Northwestern University on "Soviet Studies of the Geography of the United States," and V.A. Krotov at the University of Wisconsin on "Changes in the Distribution of the Productive Forces in East Siberia."

An American group visited the Soviet Union from August 17 to September 13, 1961. It consisted of Chauncy D. Harris, Edward B. Espenshade, Preston E. James, William Horbaly, Joseph A. Russell, and Harold H. McCarty.

Chauncy D. Harris
University of Chicago

REPORT ON THE GEOGRAPHY BRANCH, OFFICE OF NAVAL RESEARCH

The Geography Branch, Office of Naval Research, is in business as usual. It seems necessary to make this statement because a false rumor to the contrary has spread widely. Not only is the Branch very much alive and welcoming proposals; it is providing support for a program of geographic research whose breadth has not narrowed to a few nautical channels, as rumor would have it. This office supports some projects on a continuing basis, but many new projects are started each year.

The scope of the Branch program still is very broad, even if not quite as inclusive as it was in the early years after it started in 1949. As the program grew and developed, it became clear that the guiding principle, namely that the whole field of geography is important to the Navy, would have to be slightly modified in two ways: to emphasize support of geographic fields that are weak, such as physical geography and field research on foreign areas; and to encourage greater efforts in those segments of geography which are most relevant to Navy and Marine Corps problems. The latter principle might appear to be restrictive; actually it is not. Appraisals of Navy-Marine Corps needs for geographic information show that a large fraction of geographic research is in some way valuable to the two services. Admittedly, however, some projects are less relevant than others. For example, a geographical study of land use in the Ozarks would scarcely seem to warrant the expenditure of Navy funds unless it promised to develop techniques or concepts that would be applicable to Navy problems. Five areas have been selected for special attention: (1) coastal geography, (2) remote sensing of environment, (3) arctic research, (4) foreign field research, and (5) development of methodology.

A small but strong program of research in coastal geography has been maintained for a decade or so by the Geography Branch. This program urgently needs to be expanded. A major step has been taken in behalf of the field with publication of a report entitled *Coastal Geography* by the National Academy of Sciences-National Research Council. It outlines the nature and importance of the field, focuses attention on major problems, and suggests steps which may be taken to develop a comprehensive integrated national research program. The report was prepared by an ad hoc committee convened at the request of the NAS-NRC Committee on Geography, Advisory to the Office of Naval Research.

Another ad hoc panel, under similar auspices, met last January to consider the prospects for developing the field of remote sensing of environment. There was grave concern about the increasing gap between the technology of sensing and the application of powerful new tools to re-

search on the earth's environments. The panel recognized remote sensing of environment as a coherent field of research, and recommended that a study be made to draw together needs of various scientific disciplines and of the military services for research in the subject and to summarize the state of the art. A contract for this study, financed jointly by the Army Research Office, Air Force Geophysical Research Directorate, and the Office of Naval Research, has been made with the University of Michigan. It will be completed in the summer of 1962.

The arctic research program of the Geography Branch supports a broad range of field investigations in the Arctic Basin. This is a large program, but few geographers have requested support. Most of the studies fall within the fields of climatology, meteorology, geomorphology, pedology, oceanography, cryology, biology, and ecology. A key to the program is ONR's Arctic Research Laboratory at Point Barrow, Alaska. It has, in addition to shops and laboratories, its own fleet of airplanes as well as tracked vehicles and boats, and can support field projects up to several hundred miles from Point Barrow. A sample of its capability is shown by the establishment of a permanent research station, ARLIS II, located on an ice island drifting around in the Arctic Ocean. The station presently is manned by 11 scientists and technicians plus four support personnel.

The Geography Branch has always tried to foster field research in foreign lands. Of its many projects in this area, the one likely to have greatest impact on American geography is the foreign field research program conducted by the Division of Earth Sciences, NAS-NRC. Its purpose is to provide essential aid which will encourage young geographers, who are well advanced toward the Ph.D. degree, to undertake studies in foreign areas. Since the program began in 1955, more than 50 individuals have been awarded support enabling them to spend an average of one year in the field on tasks of their own choosing.

Improvement of methodology, a perennial problem in any field, is especially important in geography, and many of the projects supported by the Geography Branch have this as a major or dominant objective. Of special importance was a symposium held in May, 1960, by NAS-NRC. Its objective was the discussion and demonstration of quantification techniques, statistical analysis, and mathematical models for purposes of obtaining more exact formulation and testing of geographic theory. A proceedings volume, entitled *Quantitative Geography*, will be published early next year by The Free Press of Glencoe, Ill.

In reviewing the present state of Geography Branch affairs, a word should be added about the greatly intensified competition among various agencies of the government for funds. General George H. Decker, Army Chief of Staff, bluntly describes it this way: "If you don't fight, you're dead." There is no reason for anyone to suppose that the Geography Branch is immune to this struggle. It would be extremely useful if the Branch had a large backlog of meritorious proposals. Some could be supported now, and perhaps more could be supported in the future if there were on hand tangible, valid evidence that much more support is urgently needed.

Walter H. Bailey
Office of Naval Research

SECONDARY SCHOOL GEOGRAPHY IN AUSTRIA

Much has been written recently on the comparison of education in the United States and in European countries. Rarely, however, has it been shown how subject matter is organized elsewhere. As an example of what is being done in one of the European democracies, the writer herewith presents a translation of the official curriculum outline (Bundesministerium fuer Unterricht, Herausg., *Provisorische Lehrplaene fuer die Mittelschulen*, Oesterreichischer Bundesverlag, Wien, 1955, pp. 89-91) that is published by the Austrian Federal Ministry for Education as a guide for the teaching of geography in grades 5 through 12.

It should be remembered that the organization of Austrian schools is on a 4 plus

8 basis, the last 8 grades being the Mittelschule. Within the Mittelschule a student has the choice of four curricula, represented by the Gymnasium, the Realgymnasium, the Realschule, and the Frauenoberschule, respectively. The last mentioned is designed for women and emphasizes home economics. The contents of the four curricula, and the relative status of geographic instruction in each, are perhaps best illustrated by the accompanying table, which shows total weekly hours of selected subjects for the eight-year period.

TABLE
INSTRUCTIONAL TIME IN SELECTED SUBJECTS
MITTELSCHULEN, AUSTRIA

Subject	*Gymnasium*	*Realgymnasium*	*Realschule*	*Frauenoberschule*
First Modern Language	14	24	22	26
Second Modern Language	0	0	16	16
Latin	30	30	0	0
Greek	22	0	0	0
Mathematics	25	27	32	28
Geography	16	16	16	14

The geography requirement of two hours per week for eight years is the same for all four curricula, with the exception of the Frauenoberschule where no geography is taught in grade 11. A free translation of the curriculum outline, with editorial modifications of format, reads as follows:

LOWER DIVISION (GRADES 5 TO 8)

Aim. Knowledge of Austria and its neighbors; survey of Europe and the other continents; physical geography, population, and states; map reading and map use in the field; basic knowledge of the shape and size of the earth, and of the apparent and real motion of the earth and other heavenly bodies.

Grade 5. (a) Austria: continuation of the geographic instruction of grades 1 to 4 with respect to the treatment of the immediate home area and a survey of the country as a whole; basic features of the landscape (topography, drainage, climate, soils, and vegetation), transportation and population, economic activities of the people, and language and customs.

(b) Reinforcement and increase of the already mastered basic geographic concepts.

(c) Exercises in map reading, particularly with large scale maps of the home area. Comparison of the map with reality, and of maps of different scales; measurements on the map. Attempts at sketch maps, profiles, and so forth.

(d) Taking Austria as the point of departure, survey Europe, the other continents, and the oceans, using atlas maps as the basis for study and restricting the scope to the major geographic forms; this is not to be a specialized regional geography but a general discussion of countries and major cities; distribution of the major races of mankind.

(e) The shape of the earth and its representation by the globe.

(f) Observations of the sky, the weather, and the flora and fauna in the course of the seasons; recording of these observations.

Grade 6. (a) Geography of Asia, Africa, and southern Europe with special reference to the Mediterranean countries.

(b) The grid (longitude and latitude) as an aid in location and in map reading.

(c) Review of the path of the sun in mid-latitudes, at the equator and in the tropical zone, and at the poles and in polar regions; the significance of the position of the sun to climate, plant and animal life; longitude and time zones.

(d) Use of local large scale maps, especially on field trips. Practice in map sketching.

Grade 7. (a)Geography of Europe (except Austria and its neighbors, and southern Europe, but including the USSR in Asia); also, the geography of America, Australia, Oceania, and the polar regions.

(b) Summary review of the path of the sun in various latitudes; dependence of climate on factors other than the position of the sun.

(c) Rotation and revolution of the earth; why seasons occur; the path of the moon around the earth; the phases of the moon; eclipses of sun and moon.

(d) Continuation of exercises in practical map reading and map sketching.

Grade 8. (a) A more detailed geography of Austria, with special emphasis on economic aspects. Survey of those neighboring states that were not considered in grade 6.

(b) Survey of the continents and oceans. The world powers' share of the earth. Austria's position in the commerce and economy of the world.

(c) The earth as a body and its position in the solar system (the sun, the nine major planets, comets, and meteors); the stars. The calendar.

(d) Continuation of exercises in map reading and geographic sketching.

Remarks. In the analysis of materials, consideration should be given to the interrelationships between geography and other subjects, particularly between geography and history, and between geography and biology. The consideration of Mediterranean countries in grade 6 is intended as preparation for the history of antiquity.

In grades 6, 7, and 8, special attention should be given to those areas having cultural and economic relations with Austria, and to those that play a significant role in world economy.

The basic geographic concepts are to be presented not in a systematic order but instead whenever an area under discussion is especially suited for the comprehension of a concept. It is advisable, however, to summarize from time to time the basic concepts in an appropriate grouping.

In geography, the natural as well as the cultural landscape is to be considered.

Treatment of materials on astronomical geography should be based in part on observation, in part on other adequate illustrations. Selection of materials should be carefully adapted to the capacity of the students, and should be kept within narrow limits.

Field trips should be planned for appropriate times during the course of instruction; they should be carefully prepared and thoroughly exploited. In the beginning, these trips are to serve for typical geographical observations and for the introduction to an understanding of maps; later, also, for the comprehension of characteristic landscape types and economic entities, as well as for a continuation of the practice of map reading.

Pictures, particularly slides, should be used in addition to field trips and maps as visual aids.

Geographic instruction in all grades should place great value on a strictly objective presentation; changes in the world situation, brought about by World War II, should be considered from the point of view of the United Nations. The presentation of democracies should be more detailed than that of other countries. Geographic instruction, too, should always keep in mind the goal of education toward good citizenship and toward democracy, and should act in the service of the United Nations.

UPPER DIVISION (GRADES 9 TO 12)

Aim. Knowledge of the geography of Europe, with special emphasis on the politically and economically important countries, and of the other continents, with emphasis on the causal relation of geographic phenomena. Insight into the bearing geographical factors have on the culture and history of man. Survey of the world economy from a geographical point of view.

Grade 9. (a) Introduction (during the first 2 or 3 months of the academic year): summary of the main facts of physical geography according to causes, and their bearing on landscape and economy, followed by a general resurvey of continents and oceans.

(b) Regional geography of those non-European countries that are of world economic and political importance.

Grade 10. Regional geography of Europe (including Asiatic parts of the USSR), exclusive of Austria.

Grade 11 (except in Frauenoberschulen). Intensive regional geography of Austria; Austria's place in world economy and world commerce.

Grade 12. (a) Man and the earth: dispersal and distribution of mankind over the earth; population density; population migrations. Classification and areal distribu-

tion of mankind according to races and peoples, languages, cultures, and religions. The basic facts of settlement geography, of economic geography, and of the geography of transportation.

(b) Basic questions of political geography: the state and the earth; types of states according to their economic characteristics. The major powers, especially the USA, Great Britain, the USSR, and France.

Remarks. The offerings of regional geography should consider not only the presentation of the natural landscape but also the development of the cultural landscape, particularly in Austria. In the treatment of general geography, especially in political geography in grade 12, all reference to geopolitics and to racial theories should be avoided. The unit, man and the earth, in grade 12 should be illustrated with atlas maps.

Geographic instruction in all grades should place great value on a strictly objective presentation; changes in the world situation, brought about by World War II, should be considered from the point of view of the United Nations. The presentation of democracies should be more detailed than that of other countries. Geographic instruction, too, should always keep in mind the goal of education toward good citizenship and toward democracy, and should act in the service of the United Nations.

In *Frauenoberschulen*, the material is to be reduced in proportion to the reduction in class hours. The material of grades 10, 11, and 12 is to be distributed meaningfully between grades 10 and 12.

Fritz L. Kramer
University of Oregon

REPORT ON THE INSTITUTE ON QUANTITATIVE TECHNIQUES

Thirty professional geographers received grants to attend the Summer Institute on the Application of Quantitative Techniques in Geography, held at Northwestern University from June 27 to August 4, 1961. The institute, which was sponsored by the National Science Foundation, was directed by Edward J. Taaffe and Brian J.L. Berry, assisted by Barry Garner. Seven visiting lecturers participated: Duane Marble, John Nystuen, W.C. Krumbein, Arthur Robinson, Edwin N. Thomas, Richard Morrill, and W.L. Garrison.

The curriculum was organized on the assumption that participants would have acquaintance with a basic textbook in statistics, but a knowledge of mathematics beyond the ability to count and to recognize numbers was not presumed. Instruction in probability and matrix algebra was provided concurrently with a survey of general statistical procedures which included: descriptive and spatial statistics, sampling, analysis of variance, simple and multiple regression and covariance. Two weeks of the institute were concerned with geographical problems involving discriminant functions, grouping and regionalizing methods, factor analysis, normative and stochastic models, Monte Carlo simulation, and linear programming.

Indirectly, the institute demonstrated that the term statistical geography is a gross misnomer. The word statistical is certainly an inadequate description, since quantitative methods that are applicable to geographical studies are drawn from a wider segment of mathematics than that of conventional statistics. It was clearly evident that the special interests of the lecturers were mainly concerned with the usual branches of geography – transportation, urban, regional, marketing, and other areas within the field of economic geography – in which there are abundant data and to which quantitative methods may be applied to test ideas derived from so-called subject-matter knowledge. Concern for methods themselves seemed secondary; probably only one or two of the lecturers were thoroughly at home in all the methods surveyed during the institute. The arena for the application of quantitative methodology is hardly as circumscribed as the title statistical geography implies. The institute included examples of the application of quantitative methodology to historical, political, social, regional, population, urban, transportation, agricultural, and industrial geography, as well as to several varieties of physical geography and land utilization.

It is apparent that statistical or quantitative geography is not truly a branch of geographical study, although it may be conceived of as such by those who regard the use of quantitative procedures in geography as special or unnatural proceedings. The institute showed that quantitative procedures are as applicable in geography as any other method of analysis.

During the summer of 1962, the institute will be offered again if NSF sponsorship is proffered. The tax-free grant to participants, plus the economical use of only six weeks' time, should give many geographers cause to consider now the possibility of participating in 1962. The well established geographer probably would receive first consideration as a participant. For aspirants, the institute could be more meaningful if one prepares for it before it is convened. Sitting in on a basic statistics course on campus or on television would be useful. Two texts which are most helpful, and can be read and understood readily by self-study, are *Facts from Figures* by Moroney and *Probability and Statistics* by Mosteler, et al.

If the institute is convened again in 1962, it may be the better because of the confidence and experience gained this year, but it would be difficult to imagine a more successfully managed endeavor than that of the past summer.

Douglas B. Carter
Syracuse University

RECENT GEOGRAPHY THESES COMPLETED AND IN PREPARATION

Titles followed by an asterisk in the list below are available on interlibrary loan. The next list of titles will be published in the November, 1962 issue.

PH.D. DISSERTATIONS COMPLETED

Boxer, Baruch "Ocean Shipping in the Evolution of Hong Kong." University of Chicago, 1961. Published in full, Department of Geography Papers, Research Series No. 72.

Boyce, Ronald Reed "Comparative Central City Spatial Structure: Trends in the Location and Linkages of Selected Commercial Activities." University of Washington, 1961. Microfilmed.

Brown, Roger J.E. "Permafrost in Canada – Its Effects on Developments in a Region of Marginal Human Activity." Clark University, 1961.* Microfilmed.

Bushong, Allen D. "Agricultural Settlement in British Honduras: A Geographic Interpretation of Its Development." University of Florida, 1961. Microfilmed.

Carney, Champ Clark "Historical Geography of the Chickasaw Lands of Oklahoma." Indiana University, 1961.*

Chardon, Roland Emanuel Paul "Some Geographic Aspects of Plantation Agriculture in Yucatan." University of Minnesota, 1960.*

Church, Martha Eleanor "Spatial Organization of Electric Power Territories in Massachusetts." University of Chicago, 1960.* Published in full: Department of Geography Papers, Research Series No. 69.

Cooper, Sherwin H. "The Rural Settlement of the Lower Savannah River Basin in Georgia." University of Michigan, 1960.* Microfilmed.

Dacey, Michael Francis "Identification of Patterns on Maps with Special Reference to Data Reduction for Systems Analysis." University of Washington, 1960. Microfilmed.

Epperson, Terry E. "Geographic Factors Influencing the Manufactural Industries of Upper East Tennessee." University of Tennessee, 1960.*

Fonaroff, Leonard S. "The Navajo Sheep Industry: A Study in Cross-Cultural Administration." Johns Hopkins University, 1961.*

Foster, Gerard J. "Oriental Agriculture, the Case of Ceylon." University of California, Los Angeles, 1961.*

Freile, Alfonso J. "Agricultural Geography of Panama." Clark University, 1961.* Microfilmed.

Helin, Ronald A. "Economic-Geographic Reorientation in Western Finnish Karelia: A Result of the Finno-Soviet Bound-

ary Demarcations of 1940 and 1944." University of California, Los Angeles, 1961.*

Hereford, Joseph Pierce "An Aeronautical Classification of Climates." University of Nebraska, 1961.* Microfilmed.

Jackson, C.I. "The Meteorology of Lake Hazen, Ellesmere Island." McGill University, 1961.*

Jumper, Sidney R. "A Geographical Analysis of the Production and Marketing of Fresh Fruits and Vegetables in Florida, Georgia, and South Carolina." University of Tennessee, 1960.*

Kenyon, James Byron "Industrial Localization and Metropolitan Growth: The Paterson-Passaic District." University of Chicago, 1960.* Published in full: Department of Geography Papers, Research Series No. 67.

Kersten, Earl William, Jr. "Settlements and Economic Life in the Walker River Country of Nevada and California." University of Nebraska, 1961.* Microfilmed.

Kircher, Harry B. "A Geography of Financial Agglomeration in the United States." Clark University, 1961.* Microfilmed.

Langley, Robert S. "The Industrial Region of Stuttgart, Germany." Northwestern University, 1961.* Abstracted in *Dissertation Abstracts.*

Lee, Chun Myun "Recent Population Patterns and Trends in the Republic of Korea." University of Michigan, 1960.* Microfilmed.

Little, Richard S. "Relationship of Interchange Traffic Flow to Traffic Shed Characteristics." Syracuse University, 1961.* Microfilmed.

Maier, Emanuel "Reforestation to Re-establish a Balanced Land Use and Water Cycle in the Valley of the Aude in Aude, France." Clark University, 1961.* Microfilmed.

Malik, Johan Aia "A Historical Geography of Ingham County, Michigan." Michigan State University, 1961.*

Mattingly, Paul F. "Harrisburg, Pennsylvania: A Geographical Analysis of Selected Aspects of Retail and Wholesale Trade." Pennsylvania State University, 1961.* Published in *Abstracts of The Pennsylvania State University.*

Mayfield, Robert Charles "An Analysis of Tertiary Activity and Consumer Movement." University of Washington, 1961. Microfilmed.

Momsen, Richard P., Jr. "Routes over the Serra do Mar: An Historical Geography of Transportation in the Rio de Janeiro-Sao Paulo Area, Brazil." University of Minnesota, 1960.*

Mookherjee, Debnath "The Urban Fringe of Orlando, Florida: A Study of Land Use Patterns and Changes Associated with Urban Growth." University of Florida, 1961. Microfilmed.

Nasse, George N. "The Survival of the Albanian Minority in Southern Italy." University of Michigan, 1960.* Microfilmed.

Rowley, Virginia Marie "J. Russell Smith: Teacher, Geographer, Conservationist." Columbia University, Teachers College, 1961.*

Simkins, Paul Dean "Regionalisms in the Recent Migration to Arizona." University of Wisconsin, 1961.*

Smith, Henry Dixon "An Analysis of the Water Resources of Three River Basins in Western Minnesota with Special Reference to the Amount of Water Available for Irrigation." University of Minnesota, 1960.*

Smith, Margaret Harrison "The Lower Rio Grande Region of Tamaulipas, Mexico." University of Texas, 1961.*

Smith, Samuel Wallace "An Analysis of the Location of Physicians in the United States for the Year 1950." State University of Iowa, 1961.*

Srivastava, Harishankar Prasad "The India-China Boundary: A Study in Political Geography." University of Florida, 1961. Microfilmed.

Stickney, Hazel L. "The Conversion from Cotton to Cattle Economy in Alabama Black Belt 1930-1960." Clark University, 1961.* Microfilmed.

Stillwell, H. Daniel "A Geography of Itatiaca National Park, Brazil." Michigan State University, 1961.*

Tobler, Waldo Rudolph "Map Transformations of Geographic Space." University of Washington, 1961. Microfilmed.

Wake, William H. "The Relations between Transportation Improvements and Agricultural Changes in Madhya Pradesh, India, 1854 to 1954." University of California, Los Angeles, 1961.*

Warkentin, John H. "The Mennonite Set-

tlements of Southern Manitoba." University of Toronto, 1960.*

Weber, Charles Edwin "The Community Development Program in India: A Study of Geographic Relationships Affecting Community Development in Sonepat." Columbia University, Teachers College, 1961.*

Zaidi, Iqtidar Husain "Administrative Areas of West Pakistan: A Geographic Evaluation." Syracuse University, 1961.* Microfilmed.

PH.D. DISSERTATIONS IN PREPARATION

Ahsan, Syed Reza "East Indian Agricultural Settlements in Trinidad, B.W.I.: A Study in Cultural Geography." University of Florida.

Al-Shalash, Ali H. "Geography of Carroll County, Maryland." University of Maryland.

Andrle, Robert "Aspects of Zoogeography of Eastern Mexico." Louisiana State University.

Armstrong, R. Warwick "The Geographical Relationships between the Incidence of Stomach Cancer and Soil Types in Iceland." University of Illinois.

Blount, Stanley F. "The Isabela Irrigation District, Puerto Rico: A Case Study of Special Problems of an Irrigation System in a Densely Settled Sub-Humid Karst Region." Northwestern University.

Bowden, Martin J. "Central Business District, San Francisco." University of California, Berkeley.

Buchanan, W.C. "Historical Geography of the Ouachita River Settlements." Louisiana State University.

Conkling, Edgar C. "A Geographical Analysis of Diversification in South Wales." Northwestern University.

Copeland, Laura "Geography of the Red River Campaign, Louisiana." Louisiana State University.

Crowley, John M. "The Geography of Livestock Ranching in the Mountain Parks of Colorado." University of Minnesota.

Cutler, Richard O. "A Geographic Study of the Northeast Florida Coast." University of Florida.

Demko, George J. "A Geographical Analysis of the Migration into Kazakhstan and Its Economic Impact: 1897 to 1926." Pennsylvania State University.

Denevan, William M. "The Seasonally Inundated Savannas of Eastern Bolivia." University of California, Berkeley.

Dolan, Robert "Beach Building Processes, Cape Hatteras." Louisiana State University.

Edie, Milton J. "The Changing Geographies of Size of Rural Land-holdings in Eastern Montana." University of Wisconsin.

Edwards, Clinton R. "Small Craft of Western South America." University of California, Berkeley.

English, Paul Ward "An Investigation of the Cultural Geography of a Dispersed Religious Group: the Zoroastrians of Iran and India." University of Wisconsin.

Gonzalez, Alfonso "Land Utilization of Southwestern Coastal Mexico: Colima and Michoacan." University of Texas.

Haratani, James "Fish Culture in India." University of California, Berkeley.

Hegen, Edmund E. "Highways into Amazonia: A Study of Trans-Andean Roads in Southern Colombia, Ecuador, and Northern Peru." University of Florida.

Hill, A. David "Land-Use Change and Road Development in Villa Las Rosas, Chiapas, Mexico." University of Chicago.

Holmes, Roland C. "Efficiency of Water Use in Southern Peru." University of Chicago.

Horton, John T. "The Municipality of Metropolitan Toronto: A Case Study of Problems Related to Municipal Services in Expanding Metropolitan Areas." Northwestern University.

Hudson, James W. "Efficiency of Water Use in Utah Valley." University of Chicago.

Jones, Harding "Manufacturing Patterns and Trends in the Buffalo Metropolitan Area since World War II." Northwestern University.

Jurika, Stephen "Political Geography of the Philippines." Stanford University.

Kates, Robert W. "The Perception of Choice in Flood Plain Use." University of Chicago.

Kirkeberg, Max Coppage "The Political Geography of Northern Nigeria at the Time of British Occupation." University of Wisconsin.

Kolars, John F. "The Integration of Land-Use Associations and Resources in South-Central Turkey." University of Chicago.

Larson, Albert J. "The Hamlet as an Ele-

ment in the Settlement Fabric of Nebraska." University of Nebraska.

Lehrer, Paul Lindner "Effects of Native Agricultural Practices on Soil Productivity in Kenya." University of Nebraska.

Lynch, Donald F. "An Historical Geography of New Russia, 1780-1800." Yale University.

McDonald, James R. "Line Drawing and Regional Definition – The Eastern Limit of Brittany France." University of Illinois.

Miller, E. Joan Wilson "A Geography of the Arkansas Ozarks." Indiana University.

Montgomery, Richard Calvin "Wet Land and Land Drainage in the Central Portion of the Willamette Valley." University of Nebraska.

Morgan, H. Morris "Physical Geography of Colville Delta, Alaska." Louisiana State University.

Morgan, William H. "Human Occupance of the Coastal Areas of Florida." University of Florida.

Neal, Earl M. "The Florida Citrus Industry." University of Tennessee.

Newling, Bruce "The Growth and Structure of Kingston, Jamaica." Northwestern University.

Pal, Dilip Kumar "A Geographical Approach Toward Regional Planning in Dandakaranya Area in Eastern India." University of Illinois.

Peterec, Richard J. "The Port of Dakar: Its Role in Servicing the Needs of the French West African Community." Columbia University.

Poulsen, Thomas Martin "The Provinces of Russia: Changing Patterns in the Regional Allocation of Authority, 1708-1960." University of Wisconsin.

Price, Homer "Effects of Change in Crop Emphases in Mediterranean Agriculture." Columbia University.

Schnell, George A. "Geographic Aspects of Population Change in Lower Bucks County, Pennsylvania, 1950 to 1960." Pennsylvania State University.

Shaffer, N. Manfred "Competitive Position of the Port of Durban." Columbia University.

Siemens, Alfred H. "A Comparative Study of Recent Agricultural Settlement in the Mexican Gulf Lowland." University of Wisconsin.

Slick, Max H. "A Regional Analysis of Manufactural Allentown-Bethlehem-Easton." Pennsylvania State University.

Stamper, Clifford "On Early Kentucky Settlements." Louisiana State University.

Taylor, Robert G. "Sequent Occupance of the Cripple Creek Gold Mining District, Colorado." Indiana University.

Urquhart, Alvin W. "Agricultural Geography of the Southern Angola Highlands." University of California, Berkeley.

Van Duzer, Edward "Analysis of the Difference in Republican Presidential Vote in Cities and Their Suburbs." State University of Iowa.

Vermeer, Donald E. "Influences of Environmental Factors on the Diets of the Tiv, Ibo and Birom Peoples of Nigeria." University of California, Berkeley.

Wibking, R. Kenton "The Geography of the Cattle Industry in the Flint Hills of Kansas." University of Nebraska.

Wilhelm, Eugene "Problems in the Ecology of the Southern Andes." Louisiana State University.

Wolpert, Julian "Areal Variations in the Rationality of Farming in Middle Sweden." University of Wisconsin.

Zakrzewska, Barbara "Land Forms of the Upper Republican River Basin." University of Wisconsin.

MASTERS' THESES COMPLETED

Ahlgren, Frederic C. "The Attack of the Gustav Line in Italy by the Fifth Army in World War II." University of Oklahoma, 1961.

Andress, Joel H. "The Role of Wood in the Economy of Maine." University of California, Berkeley, 1960.

Andrews, J.T. "The Glacial Geomorphology of the Northern Nain-Okak Section of Labrador." McGill University, 1961. [M.Sc.]

Andrick, David "Historical-Geographical Survey of Cuyahoga Falls, Ohio." Kent State University, 1961.*

Backhouse, Judith "Functional Differentiation in Santa Monica, California." University of California, Los Angeles, 1961.*

Bean, John L. "The Role of the Sabine-Neches Waterway in the Economic Development of the Golden Triangle." University of Texas, 1961.

Beaudet, Paul R. "The Climate of the Aleutian Islands." Clark University, 1961.

Blum, Fredrick "The Effects of Urban Re

development upon Surrounding Areas: The West Central Area of Chicago." University of Chicago, 1961.

Brown, Robert Charles "The Agricultural Geography of Peppermint in the Pacific Northwest." Oregon State University, 1961.

Burrill, Robert M. "A Classification of Hybrid Corns Using Thornthwaite's Development Unit." University of Chicago, 1961. [M.Sc.]

Chaplin, Ronald L. "Spatial Changes in Coal Employment within Southern Illinois, 1900-1959." Southern Illinois University, 1961.*

Chipman, John Martin "Recreational Landscape at Reservoirs of Western Kansas." University of Nebraska, 1961.*

Clodfelter, Carolyn (Steidle) "Political Regions of the City: An Analysis of Voting Data in Cincinnati." Clark University, 1961.

Corley, Nora T. "The Montreal Ship Channel 1805-1865." McGill University, 1961.

Cross, Ralph D. "The Oklahoma City Milk Shed." University of Oklahoma, 1961.

Dlin, Norman "Some Cultural and Geographic Aspects of the Christian Lebanese in Metropolitan Los Angeles." University of California, Los Angeles, 1961.*

Driscoll, Dennis M. "The Variability of Precipitation in California." Pennsylvania State University, 1961. [M.Sc.]

Forde, Harold McClure "Geography of Morocco." Leland Stanford Jr. University, 1960.*

Francis, Robert J. "An Analysis of British Columbia Lumber Shipments: 1947-1957." University of British Columbia, 1961.

Frost, Melvin J. "Factors that Influenced Homesteading and Land Abandonment in San Juan County, Utah." Brigham Young University, 1960.*

Goldberger, Lawrence "Metropolitan Wholesale Produce Markets as Typified by Chicago." University of Chicago, 1961.

Goldman, Donald L. "Owens Valley and Its Water." University of California, Los Angeles, 1961.*

Greenwood, Ned H. "A Geographical Survey of the Upper Watershed of the Little Colorado River, Arizona." Brigham Young University, 1960.*

Groves, Paul A. "An Approach to Estimating Future Industrial Water Requirements in the Southeastern United States." University of Maryland, 1960.*

Hanuska, Julius P. "Medina, Ohio: A Geographic Study." Kent State University, 1961.*

Harington, C.R. "History, Distribution and Ecology of the Muskoxen." McGill University, 1961. [M.Sc.]

Henson, Raymond V. "Mission Valley, San Diego County, California, A Study in Changing Land-Use from 1769 to 1960." University of California, Los Angeles, 1960.*

Hessler, Sherry O. "Patterns of Transport and Urban Growth in the Miami Valley, Ohio, 1820-1880." Johns Hopkins University, 1961.*

Hladik, Ralph A. "Geography in Transition in the Public High Schools of Chicago." University of Chicago, 1961.

Hopple, Lee "Ecological Crop Geography of the Sugar Beet in the Northern Great Plains." Pennsylvania State University, 1960. [M.Sc.]

Horvath, Ronald "The Functions of Santa Fe Springs, California." University of California, Los Angeles, 1961.*

Hussain, Abdul "Trade Areas of Chicago Heights, Illinois." University of Chicago, 1961.

Inskeep, Edward L. "Transition in a Mexican Town, San Blas, Nayarit." University of California, Los Angeles, 1961.*

Izzard, Alex "The Factors Influencing the Agglomeration of the Electronics Industry in San Fernando Valley." University of California, Los Angeles, 1961.*

Johannes, Irene Elise "Geographic Field Study for Acoustically Handicapped." University of Chicago, 1961.

Jordon, Terry G. "The German Element of Gillespie County, Texas." University of Texas, 1961.

Just, Mary "Karst and Karst Regions in the United States." University of Chicago, 1959.* Microfilmed.

Kates, Robert W. "Seasonality of Flood Events." University of Chicago, 1960. Microfilmed.

Ketteringham, William James "The Settlement Geography of the Napa Valley." Stanford University, 1961.*

Keuper, Harold F. "An Economic Classification of Standard Metropolitan Statistical Areas." Clark University, 1961.

Kirby, R.P. "The Last Phases of Deglacia-

tion in the Schefferville Area as Interpreted from Glacial Drift and Till Fabric Analysis." McGill University, 1961. [M.Sc.]

Kolbo, Allan Dale "The Farwell Unit: Preview of an Economic Development in Central Nebraska." University of Nebraska, 1961.*

LaValle, Placido "Quantitative Aspects of Certain Virginia Soils." Southern Illinois University, 1961.*

Lefevre, Dorothy J. "Geographic Aspects of the Private Swimming Pool Industry in Los Angeles." University of California, Los Angeles, 1960.*

Leffler, Theodore L. "Coal Mining Trends in Somerset and Cambria Counties, Pennsylvania, 1947-1959." University of Oklahoma, 1961.

Lind, Aulis O. "Water Control on the Meyer Bottomlands, Illinois." Southern Illinois University, 1961.*

Loeben, Arthur F. "Mapping the Slopes of Montgomery County, Pennsylvania." University of Pennsylvania, 1961.

Longwell, Alden Richard "Lands of the Omaha Indians." University of Nebraska, 1961.*

MacGraw, Frank Moss "The Santa Clara Valley: An Historical and Geographical Appraisal." Stanford University, 1961.*

Markus, Neil A. "Areal Patterns of Religious Denominationalism in Minnesota, 1950." University of Minnesota, 1961.*

Matthew, E.M. "The Glacial Geomorphology and Deglacierization of the George River Basin and Adjacent Areas in Northern Quebec." McGill University, 1961. [M.Sc.]

Mbogua, J.P. "Peasant Agriculture in Barbados: A Sample Study." McGill University, 1961.

McNeil, Norman B. "A Geographic Study of the Baton Rouge Fault, Baton Rouge, Louisiana." Louisiana State University, 1961.

Means, John W. "The Economic Functions of Effingham, Illinois." Southern Illinois University, 1961.*

Mercer, Arthur W. "A Comparison of the Patterns of Japanese Foreign Trade, 1936 and 1956." University of Chicago, 1960.* Microfilmed.

Midkiff, Lottie "The Geography of Lincoln County, West Virginia." Marshall University, 1961.*

Mooers, E. Carl "Land Use Planning and the Consumer: A Study of Shopping Centers in Santa Clara Valley, California." Stanford University, 1961.*

More, Rosemary M. "The Influence of Water-Rights Litigation upon Irrigation Farming in Yolo County, California." University of California, Berkeley, 1960.

Mulhauser, John E. "Commercial Greenhouse Horticulture in Cuyahoga County, Ohio." Kent State University, 1961.*

Nelson, Charles Edward "Deep Well Irrigation in Hamilton County, Nebraska: Resource, Development, Impact and Future." Oregon State University, 1961.

Newland, Dale Cecil "Heat Unit Accumulation in Degree-Hours Above Selected Temperature Levels in Oregon." Oregon State University, 1961.

Pendleton, Jesse L. "Structural Changes of the Peruvian Population 1940-1955." Clark University, 1961.

Powell, Grace L. "The Relationship of Physiography to the Hail Distribution Pattern in Central and Southern Alberta." University of Alberta, 1961.

Radell, David R. "'Mom 'N' Pop' Grocery Stores in the Boyle Heights Section of Los Angeles, California: A Study of Site and Situation." Los Angeles State College, 1961.

Radley, Jeffrey "The Physical Geography of the East Coast of Nicaragua." University of California, Berkeley, 1960.

Rayner, J.N. "January Temperatures in the Canadian Arctic 1000-500 mb." McGill University, 1961. [M.Sc.]

Rees, John D. "Changes in Tarascan Settlement and Economy Related to the Eruption of Paricutin." University of California, Los Angeles, 1961.*

Rizvi, Najma Aziz "Agricultural Systems of Southeast Asia." University of Florida, 1961.*

Roach, John P. "The Influence of Physical Geography on Naval and Amphibious Warfare in the Pacific in World War II." Pennsylvania State University, 1961. [M.Sc.]

Saunders, Margery H. "California Wheat: 1867-1910: Influence of Transportation on the Export Trade and the Location of Producing Areas." University of California, Berkeley, 1960.

Schacht, Crichton "Recreational Boating in Metropolitan Chicago, An Inventory and

Analysis." University of Chicago, 1961.

Schnell, George A. "A Geographical Analysis of Factors Affecting Distribution of Unirrigated Cotton Cultivation in the United States." Pennsylvania State University, 1960. [M.Sc.]

Scovel, James L. "The Spatial Distribution of Army and Air Force Installations within the 48 States." Syracuse University, 1961.

Seig, Louis "Tobacco Culture in the Connecticut Valley." Louisiana State University, 1961.

Smith, Floyd Harold "Intensity and Periodicity of Spring Precipitation in the Willamette Valley." Oregon State University, 1961.

Smits, Visvaldis "Impact of Collectivization on Latvian Agriculture." University of Washington, 1960.

Sorrels, Floyd Ephriam, Jr. "A Study of the Central Place Hierarchy in North Central Oklahoma." Oklahoma State University, 1961.*

Southworth, John James "Alternative Routes for the Great Slave Lake Railway: Some Geographical Considerations." University of Washington, 1960.

Spetz, Dennis L. "Mobile Home Housing in Medina, Summit and Portage Counties, Ohio." Kent State University, 1961.*

Stansfield, Charles A. "A Geographical Analysis of the Cattle Industry of Southeastern United States." Pennsylvania State University, 1961. [M.Sc.]

Stouse, Pierre A.D. "Municipio of Huasca, Hidalgo, Mexico, A Study of Land Settlement Patterns." University of Texas, 1961.

Tata, Robert J. "Problems of Industrial Old Age, New Britain, Connecticut: A Case Study." Syracuse University, 1961.

Thurston, David L. "Origins of Tourists: Ogemaw County, Michigan." University of Chicago, 1959.* Microfilmed.

Tomlinson, R.F. "Glacial Geomorphology in the Kaumajet Mountain and Okak Bay Areas of North Eastern Labrador." McGill University, 1961. [M.Sc.]

Trussell, Margaret "Settlement of Bodega Bay." University of California, Berkeley, 1960.

Tyman, J.L. "Man and the North Shore: A Study in Environmental Response." McGill University, 1961.

Unterberg, Lester "An Analysis of Some Aspects of the Changing Population of Nassau and Suffolk Counties, L.I., for the Period 1930-57." Clark University, 1961.

Viletto, John, Jr. "Ecological Crop Geography of the Orange in California." Pennsylvania State University, 1961. [M.Sc.]

Volk, Donald J. "Water Pollution in the St. Joseph River Basin." University of Chicago, 1960.* Microfilmed.

Weaver, Glen D. "A Geographical Analysis of Kent, Ohio, Manufacturing." Kent State University, 1961.*

Weiler, Eugene Thomas "I. Cost Determinants of River Basin Development: The Columbia River Power System Case. II. An Illustration of the Use of the Basic-Service Ratio in Seattle, Washington." University of Washington, 1961.

Wheatley, Iris Velez "The Effects of Irrigation on the Land Use Pattern of the Lajas Valley." University of Florida, 1961.*

Wijayapala, W.A. Lal "The Location of Economic Functions and the Functional Structure of Colombo, Ceylon." University of Chicago, 1960.* Microfilmed.

Williams, Thomas M. "The Distribution of the Soybean in Illinois, 1954." Southern Illinois University, 1961.*

Wolde-Michael, Akalou "Some Aspects of Rural House Types in Africa South of The Sahara." University of California, Los Angeles, 1961.*

Wolfe, Jeanne M. "A Survey of the New Towns of the London Area." McGill University, 1961.

Young, Gerald Loren "The South Umpqua Ranger District: A Case Study in Multiple Use." Oregon State University, 1961.

Leslie Hewes
University of Nebraska

NEWS FROM GEOGRAPHIC CENTERS

GEORGE WASHINGTON UNIVERSITY

The Department of Geography at George Washington University has extended its activities into a number of related fields and educational activities. The Fall television course, Classroom 9, offered by the University in cooperation with WTOP-TV, is on world geography. The instructor in this new venture is Meredith Burrill. Also, for the first time this Fall, the Department has accepted two doctoral candidates, Eldon Miller and Lynn Carroll, both of whom will be University Teaching Fellows. Carroll is the recipient of The Gilbert Grosvenor Fellowship in Human Geography which was established at the University this Summer by the National Geographic Society to honor its Past President.

In addition to its regular degree programs in geography, the Department is sponsoring two related programs: the B.S. degree in cartography, offered largely off-campus; and the new Master of Arts program in city planning administration, offered in the School of Government, Business, and International Affairs.

Professor Campbell is directing the Urban Planning Data Systems Project, a study undertaken for the Maryland-National Capital Parks and Planning Commission. The investigation is concerned with identifying information requirements to the extent that a complete data system can be devised – collection, storage, and retrieval – utilizing machine methods of data processing where feasible. Concurrently, Assistant Professor Davis is directing the Parkway Impact Study, a research program undertaken for the National Park Service. The purpose of the investigation is to measure as quantitatively as possible the social and economic impact of Federal Parkways in the Washington metropolitan area. Since early Summer, Associate Professor Westermann has been in Turkey as a member of a three-man team engaged in the planning and design of integrated industrial structures. The project is sponsored by the International Cooperation Administration.

Campbell and two associates completed an evaluation of the shoreline recreation resources of the United States this summer; their report will be published by the Outdoor Recreation Resources Review Commission later this year as one volume of its final report.

Part-time faculty members continue to help the regular staff immeasurably with its academic program, both on and off campus. Eric Fischer, long a member of the part-time staff, will teach one course, as will Jerry Pickard, Joan Barry, Bob Alexander, Allan Riggs, and William Maloney.

GEORGIA, UNIVERSITY OF

Recent staff expansions, and new physical facilities for both geography and geology, led to the recommendation that the Department be split into two units as of September, 1961. Upon Dr. Prunty's recommendation, the Regents appointed Dr. Vernon J. Hurst as Head of the new Geology Department. A graduate of the Department, Dr. Hurst holds the Ph.D. from Johns Hopkins and has served as Assistant State Geologist for seven years. He will head a five-man staff. The two Departments will continue to share certain facilities in the new building which they occupied in 1960.

During the past year, the Department benefitted from the presence of several well-known lecturers and visitors. Among these were O.H.K. Spate of the Australian National University, J.O.M. Broek of Minnesota, C.F. Jones of Northwestern, Arch C. Gerlach of the Library of Congress, Robert S. Platt of Chicago, William F. Reifsnyder of Yale, and Richard H. Jahns of Penn State. Professors Jahns and Platt each conducted seminars of a week's duration. Professor Reifsynder presented lectures on the energy balance in forest environments and on research in forest fire phenomena. The annual meeting of the Southeastern Division, AAG, was held November 20-22, 1960, in Athens with the Georgia Department serving as host. The new building was dedicated during this meeting; about 150 attended.

Until 1960, the Department was unable to expand its graduate programs because of crowded facilities. The new building removed this obstacle; five Ph.D. candidates have been admitted for the 1961 Fall Quarter, and the Masters program has

been expanded also. Undergraduate enrollment increased almost 18 per cent during 1960-61 because of adequate space in the new facility. Although undergraduate enrollments are expected to increase 10 per cent annually during the next three years, the Department plans to restrict the size of the resident graduate group.

Don R. Hoy, formerly on the Ohio State staff, joined the Department in September, 1961, as Assistant Professor. His monograph on Guadeloupe, sponsored by NAS-NRC, was published in August. Dr. Hoy will assume responsibility for advanced courses treating Latin America and for certain work in economic geography.

In July, the University created a new Institute for Community and Area Development whose functions will consist of both planning and development services to communities as well as research in area development in Georgia. The Institute is to be staffed and operated by geographers, economists, landscape architects, and political scientists. Howard A. Schretter (M.A., Georgia, 1958), until July the Athens-Clarke area research planner, joined the Department as Research Associate in connection with the new Institute and will devote full time to area development studies henceforth. James E. Lewis (Flint, Mich.) has been appointed Graduate Research Assistant in Area Development for 1961-62.

Other appointments for 1961-62 include Robert W. Peplies (Chicago, Ill.) as Supervising Graduate Assistant; Rachel Ann Allen (Montezuma, Ga.) and Polly H. Walters (St. Andrews, Scotland) as Graduate Research Assistants; John H. Watson, Jr. (Atlanta, Ga.) as Atlantic Steel Company Research Fellow in Economic Geography; Paul D. Cooper (Worthington, Ohio) as NSF Fellow in Climatology; and Nathaniel Goode (Athens, Ga.) as Georgia Forestry Research Council Assistant in Climatology. Gayle E. Janosko (California, Pa.), Sten A. Taube (Marquette, Mich.), and Carl R. Hill (Winterville, Ga.) hold National Defense Graduate Fellowships – each for three years of graduate residence. Graduate Teaching Assistants include Charles S. Aiken (Senatobia, Miss.), Leonard J. Evenden (Hamilton, Ontario), Hway-hwa Chang (Taipeh, Taiwan), Robert S. Millians (Newnan, Ga.), Russell Hassemer (Reno, Nev.), Thomas P. Grimes (Yellow Springs, Ohio), William Imperatore (Ellwood City, Pa.), Gerald Wolfe (Waukesha, Wis.), and Robert Leisendahl (Atlanta, Ga.).

James A. Shear spent half of the Spring and all of the Summer Quarters, 1961, working at the Georgia Forestry Commission's Environmental and Fire Protection Laboratories in Macon. He will continue his research in fire climatology and moisture variability full-time during the 1961 Fall Quarter. A new Askania theodolite, installed in the rooftop microclimate laboratory, will facilitate studies of smoke plume profiles. In April, Dr. Shear was informed that Mount Shear, Lat. 78°21′ S., Long. 86°13′ W., in the Ellsworth Highland in Antarctica, had been named after him in recognition of his work as chief of the Cape Hallett station, Antarctica, during the International Geophysical Year. Dr. Shear is serving as the first Editor of the new periodical, *Southeastern Geographer*, of the Southeastern Division, AAG. During 1961, Merle Prunty continued to serve on several AAG and NSF committees. He received a Michael Foundation award in June to support studies of plantation landholdings in southwestern Georgia. Ray M. Northam launched a study of urban change phenomena during 1960-61 which is supported by the University's Faculty Research Program; this study will continue for several years. James F. Woodruff continued his investigation of the distributional characteristics of the Negro slave population in the South in 1850 via support provided by the University's Faculty Research Program. Dr. Woodruff presented a preliminary report on this project at the East Lansing AAG meeting. He also initiated a project in his area of major interest, geomorphology, via large scale examination of the morphometric-morphographic traits of certain Piedmont sample areas.

MINNESOTA, UNIVERSITY OF

Professor John Borchert is directing the Urban Research Program of the Upper Midwest Economic Study – a University-based, Ford Foundation and business-sponsored regional study of the Ninth Federal Reserve District. The District includes Upper Michigan, northern and western Wisconsin, Minnesota, the Dakotas, and Montana. The study will include a description, analysis of change, and projection of the regional economy, assuming several alter-

native action programs or plans. The Urban Research project is an effort to relate problems and policies of community planning to regional economic development. The project will include detailed geographical studies of urban growth and change in the entire region. The study is scheduled for completion in 1963.

Assistant Professor Ronald Helin, Ph.D. from the University of California at Los Angeles, has joined the permanent staff of the Department. He will specialize in political geography, with a regional emphasis on the Soviet Union and adjacent areas of Europe. Dr. Helin is a former NAS-NRC Foreign Field Fellow and former Ford Fellow of the Russian Institute at Columbia University.

In September, Professor Eugene Cotton Mather became Chairman of the Department of Geography.

OHIO STATE UNIVERSITY

Don R. Hoy has resigned as Assistant Professor to accept a similar position at the University of Georgia. During the past Summer, he and Francis Seawall taught in the Victoria branch of the University of British Columbia. Richard G. Silvernail has been appointed as Assistant Professor to replace Mr. Hoy, effective October 1, 1961.

Robert S. Platt served as Mershon Visiting Professor during the Spring Quarter and taught the history of geography and a seminar on tropical development as illustrated by Africa and Latin America.

Fritz Loewe, recently retired from the Chairmanship of the Department of Meteorology in the University of Melbourne, joined the faculty as a Visiting Professor with a joint appointment in the Institute of Polar Studies and the Department of Geography.

S. Earl Brown was advanced to the rank of Associate Professor, effective October 1, 1961. He spent the Summer in Europe as a leader of a tour sponsored by Wayne State University.

A research report on *Ohio Manufacturing, 1939-1958*, by Alfred J. Wright and Henry L. Hunker, has been accepted for publication by the Bureau of Business Research. Mr. Hunker has underway a study of the interchanges of thruways and the localization of manufacturing. Both projects have received support from the Development Fund of the University. S. Earl Brown's study of the aluminum industry of the Ohio Valley also has been supported by the Development Fund.

Jack R. Villmow has received a grant of $3,400 from the Mershon Committee on Education in National Security in support of a project on geographic regionalism in the Soviet Union; Fred A. Carlson and Francis Seawall are cooperating in a study of coal traffic on the Ohio River system; John R. Randall's book-length study of the political geography of Israel is nearing completion; and Guy-Harold Smith is working on a population map of Ohio, based on 1960 census data by minor civil divisions.

The Departments of Geography at Ohio State University and Miami University have entered an agreement on a joint program leading to the Ph.D. degree.

The remodeling of Hagerty Hall has improved materially the physical facilities of the Department. One new classroom has been made available for the more or less exclusive use of the Department. Seating space has been increased approximately 30 per cent. Additional office space, and the division of two large offices, give nine members of the regular staff private offices. A fine new seminar room, formerly the Griffith Memorial Library (insurance), has become available to the Department.

About two-thirds of the introductory geography course will be handled on a lecture-laboratory basis, and, as a consequence, three additional graduate assistants have been added to the junior staff.

During the past year, the Department staffed two elementary classes in Lima, the newest of the four off-campus branches of the University.

Out of a total of 26 graduate students enrolled during 1960-61, seven were international students: three from India, one from Lybia, one from Uganda, B.E.A., one from Canada, and one from Poland. The largest enrollment during the year was 1,535, in the Winter Quarter.

SYRACUSE UNIVERSITY

The Department of Geography at Syracuse opened the Fall term with 30 graduate students, 16 of whom are doctoral candidates. They represent 14 undergraduate universities and include representatives from six overseas countries. It is expected that the Department will move into its new building in November.

Syracuse University regrets to announce the death of Professor Teiichi Yamazaki of the Department of Geography at Kobe University, Japan. Professor Yamazaki arrived at Syracuse in March as a Visiting Scholar and expected to remain this Winter. He died unexpectedly on August 1 and the Department extends its sincere condolences to his family and friends at Kobe University.

Professor George B. Cressey has been named as a National Phi Beta Kappa Visiting Scholar and will speak at 16 colleges and universities during the academic year. His new volume, entitled *Soviet Potentials, A Geographic Appraisal*, will be published by the Syracuse University Press in January.

At Commencement in June, Professor Preston E. James was named the Frank M. Smalley Alumni Professor of Geography in honor of his long and distinguished service to the University. He has devoted most of this summer to the preparation of a new volume on cultural geography. Professor James was one of the five American geographers who traveled through the Soviet Union in August and September as guests of the Academy of Science. Earlier in the year, Professor Julian Saushkin of Moscow University was the guest of the Department here, where he met with students in the Soviet Seminar and also delivered a public lecture.

Twenty-one geographers took part in the annual field camp during the past summer, held again at Potsdam in the St. Lawrence Valley. Field work was under the direction of Professors David de Laubenfels and Peter Gould.

Dr. Peter R. Gould's new volume, entitled *Africa, A Continent of Change*, has just been published by Wadsworth and consists of readings in political, economic, and social change in Africa south of the Sahara.

Dr. Donald W. Meinig's study of colonization, entitled *On the Margins of the Good Earth, The South Australian Wheat Frontier, 1869-1884*, will be published this Fall by Rand McNally and Company for the AAG Monograph Series. He is presently completing the manuscript of a larger study of colonization in the Pacific Northwest Interior.

WATERLOO UNIVERSITY COLLEGE

In the Spring of 1961, Waterloo University College (formerly an affiliated College of the University of Western Ontario; now the Arts College of the newly chartered Waterloo Lutheran University) graduated its first students in honors geography. Although geography courses have been given at Waterloo for a number of years, the Department of Geography was not established until 1959, when Ralph R. Krueger came from Wayne State University to become Chairman. In the Fall of 1961, there will be four geographers in the Department with varying research and teaching interests: Ralph R. Krueger – urban, land use, and planning; Aubrey Diem – Europe and cartography; E. Roy Officer – economic and population; and David K. Erb – geomorphology, air photo interpretation, and resource conservation.

Besides a four year B.A. program in honors geography, the Department offers one course in geology, and is initiating this year a program in honors geography and planning. The latter is a liberal arts program concentrating on those subjects which are basic requirements for a career in urban, regional, and resource planning. Geography forms the core of the program, with English, a foreign language, geology, economics, statistics, and planning as other required subjects. Options may be chosen from history, philosophy, sociology, and politics. Only three courses will be given in planning, *per se*. It is expected that development of the technical aspects of planning will be provided by experience or graduate training in planning.

OTHER ITEMS

OUTLET FOR GEOGRAPHIC ARTICLES

The *Military Review*, published by the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, extends a cordial invitation to geographers to submit manuscripts for publication.

The *Military Review* is a professional journal dedicated to promotion of the military art and the professional development of military leaders. Although designed primarily for the military reader, it is read by many others who maintain an active interest in military affairs.

Submission of articles on timely topics related to the military profession is welcomed. Every manuscript received is given thorough consideration. Literary prominence of the author is not a prerequisite to acceptance. Every article is judged on its individual merits, conditioned by the objectives of the publication, world events, and other editorial considerations.

Copies of the *Military Review* will be furnished free upon request to the Editor-in-Chief, Colonel Kenneth E. Lay.

EXHIBIT ON AMERICAN EXPLORATION

The Technical Records Division of the National Archives and Records Service prepared, on invitation from the Executive Committee of the Tenth Pacific Science Congress, an exhibit of photoreproductions of records in the National Archives describing American participation in the geographical exploration of the Pacific Basin, 1783-1899. The exhibit was displayed at the Congress meeting at the University of Hawaii, August 21 - September 6, 1961.

The exhibit consisted of 65 panels. A random selection of items covered includes: Capt. Joseph Ingraham's discoveries in the North Pacific Ocean, 1790-92; American whalers in the Pacific, 1819; landscape sketches of islands visited, 1854-58; nautical information carried by a ship in the Pacific Ocean, 1827; report of Jeremiah N. Reynolds, proponent of a scientific expedition to the South Seas, 1828; Wilkes' discovery and survey of part of the Antarctic Continent, 1840; the face of the United States west coast, 1869; railroad surveys in western United States, 1853-57; and Alaska, 1867.

The exhibit was prepared by Herman R. Friis, Chief Archivist of the Technical Records Division of the National Archives, assisted by Jean S. Lansche and Bonnie Showalter.

SPECIAL ISSUE ON POLAND

A special issue, Supplement to Volume XXXII of *Przeglad Geograficzny (Polish Geographical Review)* was published for the Nineteenth International Geographical Congress, held in Stockholm in August of 1960. The publication contains 25 articles, 17 of which are written in English and 8 in French.

Many of the papers deal with various aspects of the geography of Poland and include a report on Polish research on behalf of the nation's economy, types of Polish landscapes, geomorphological classification of the Polish coast, hydrographic problems of the Polish Baltic coast, problems of regional structure in Poland, economic regional structure in Poland, Polish industry, settlement problems in western and northern Poland, and others. In combination, the articles form one of the most comprehensive analyses of the current geography of Poland, and of the state of geographical research in the country, that is available in western European languages.

Copies of the publication may be obtained from Dr. A. Kuklinski, Managing Editor, *Przeglad Geograficzny*, Krakowskie Przedmiescie 30, Warszawa 64, Poland.

RESEARCH SEMINAR ON CHINESE GEOGRAPHY

Plans are under consideration for a six weeks Summer Program on Chinese Geography in July-August, 1962, with the possibility of support from the National Science Foundation under their Advanced Science Seminar Program. The seminar will be designed for faculty and advanced graduate students in geography with interests in East Asia. Under special circumstances, the program may be open to scholars in related fields or areas. Stipends will be available for selected participants.

Details will not be ready until December, but it is expected that a number of the leading geographers in the China field will participate. For the moment, enquiries may be directed to Professor George B. Cressey, Department of Geography, Syracuse University, Syracuse 10, New York.

PACIFIC ISLAND TERRACES

Supplemental Volume 3 of the *Zeitschrift fur Geomorphologie*, 1961, consists of the papers presented at a symposium, entitled Pacific Island Terraces: Eustatic?, which was held at the Tenth Pacific Science Congress of the Pacific Science Association in Honolulu, Hawaii during the Summer of 1961. The symposium was or-

ganized by Professor Richard J. Russell, Louisiana State University, and was jointly sponsored by the Sections of Geography and of Geophysical Sciences.

Eleven papers are contained in the 106-page volume. Areas dealt with include coastal sections of Australia, the Aleutian Islands, Mauritius Island, India, King Island, and Japan. Topics considered included such diverse subjects as eustatic shorelines, submerged marine terraces and their sediments, sea level rise during the past 20,000 years, the emerged shoreline, and recent terraces of tropical limestone shores. Questions raised by the papers are, of course, of universal, rather than Pacific Basin interest; the volume is a milestone in the study of coastal and lower river valley terraces.

All of the articles are printed in English. Copies of the publication are available from Gebruder Borntraeger, Verlagsbuchhandlung, Berlin-Nikolassee.

FELLOWSHIP FOR WOMAN GEOGRAPHER

For the academic year 1962-1963 the Society of Woman Geographers is offering an Adelene Moffat Fellowship of $3000 for graduate work in geography at Columbia University. This fellowship is open to women only. At Columbia University there is opportunity to specialize in economic geography, the geography of economic development, and historical geography. In the field of regional studies there are formal area programs for Africa, Eastern Asia, Europe, Latin America, the Middle East, and the USSR. Application blanks may be obtained by writing to the Office of University Admissions and Financial Aid, 322 University Hall, Columbia University, New York 27, New York. Applications must be received on or before February 1, 1962.

INEXPENSIVE LIVING ACCOMMODATIONS

Quid Pro Quo, University Vacations Exchange, is a new service designed to fill the needs of faculty members who plan to visit new areas and wish to obtain inexpensive and comfortable living quarters. This is accomplished through the exchange of accommodations between faculty members going to one another's areas. Exchanges are arranged between university personnel living in different parts of the United States, as well as between those residing in this country and Canada or western Europe.

For geographers engaged in field work, whether for the summer or for the whole year, the service can eliminate virtually all charges for accommodations, bringing the cost of field work essentially down to travelling expenses and the incidentals involved in the research projects. Married graduate students in good standing are eligible to use the service.

Most parts of the United States and Canada and all countries of western Europe, except Spain, Portugal, and Greece, are comprehended in the service.

The fees for exchanges, payable by both parties to the exchange, are nominal. Those interested may write to Quid Pro Quo, 865 West End Avenue, New York 25, N.Y. for full details.

SECOND SUMMER INSTITUTE IN QUANTITATIVE METHODS

Tentative plans are being made for a second Summer Institute in Quantitative Methods to be offered by Northwestern University in collaboration with the University of Chicago from June 26 to August 4, 1962. The Institute would again be designed for college teachers of geography whose training did not include formal experience in the application of quantitative methods to geographic problems. Its specific motive would be to narrow the gap between geographic teaching and research by enabling more geographers to evaluate recent quantitative research and to incorporate useful findings into their own teaching and future research. If monetary support is forthcoming, announcements will be sent to geography departments some time in December. For additional information, write Professor Edward J. Taaffe, Department of Geography, Northwestern University, Evanston, Illinois.

NSF RESEARCH PROPOSALS

The Division of Social Sciences of the National Science Foundation announces that the next closing date for receipt of basic research proposals in the social sciences is February 1, 1962. Inquiries should be addressed to the Division of Social Sciences, National Science Foundation, Washington 25, D.C.

COMMUNICATIONS FROM READERS

MORE ON LITERARY GEOGRAPHY

Dear Editor:

To see in print a plea for a more literary geography is a refreshing experience. A stimulant like Dr. Floyd's article (*The Professional Geographer*, Vol. XIII, No. 4, July, 1961) is fine, but reading it will not alone make a good writer out of a geographer. What is the next step? For purposes of simplicity, let us assume that the geographer is well trained in his profession, that he has marshalled all pertinent facts and analyzed them soundly, and that the results merit transmission to a wider audience. At this point, his main purpose is to transmit his ideas effectively to a selected audience – other geographers, city or regional planners, policy makers, military planners, or even the geographically uninitiated. For this purpose, he should strive first for absolute clarity and a simplicity of language that permits no misinterpretations. It is a tall order and, if our author achieves it completely, the battle is half won. However, the paper may not yet read smoothly or be directed toward the specific consumer.

Not until this point should the author worry about style. At the earlier stages, content and organization should be his prime concern; and they are likely to suffer if attention is divided. Were there time enough, the author would do well to set the paper aside for a week or two and come back to it with a fresh mental attitude. Failing this, even a good night's sleep will help. For the inexperienced writer, the converting of his manuscript into literature is just plain hard work of a type for which he is likely to be ill prepared unless he has a natural flare for language. He would do well to press into service his colleagues, friends, and, in fact, anyone who can be induced to read the manuscript. He will be amply rewarded, and he will be amazed at the sources of some of the most astute and constructive criticisms. Furthermore, he should never forget the editor, who is generally regarded as an ogre but is really the author's best friend. The author should go over the editor's changes carefully and try to figure out why each was made. Usually, he can discover the reason without guidance; if not, any editor worth his or her salt will gladly explain his reasons or, if he has misinterpreted the original meaning, figure out with the help of the author some more satisfactory phrasing. Editors, too, sometimes make mistakes. To sum it up, editors are the final guinea pigs upon whom the manuscripts are tested before they are released to the public in general.

As an author becomes more experienced, he will need less outside criticism; he will write more easily and better; he will develop an ability to look at his own work objectively rather than as a cherished brain child. By the time a geographer has written enough to have mastered these skills, his colleagues will agree that he has developed a truly literary skill that is definitely his own.

Can all of this be accomplished in one professional life time? Some find the task almost overpowering. The process, however, could be speeded up if it were started early enough. For the undergraduate, the old-fashioned term paper is a good tool for removing pen-shyness. Fear of writing can best be overcome by more and more writing. The preparing of weekly one-page papers on topics under study is an excellent way to acquire habits of concise writing. By the time a geographer has entered graduate school, another tactic might be introduced. Would it not be possible for the English and Geography Departments to cooperate by offering a geographical-writing seminar in which each student would work on his own selected subject under the dual guidance of an English Department *and* a Geography Department sponsor? General discussions of the specific problems of individual students would

be of help to all. Moreover, each student would realize that he was not alone in facing the problems of becoming a top-rating geographical writer.

Lois Olson
Washington, D.C.

PLEA FOR ASSISTANCE

Dear Editor:

This past September, Chicago opened the doors of its second Teachers College. Chicago Teachers College – North is besieged by the usual problems typical of a young institution. Our Department of Geology and Geography has been guaranteed space, laboratory, and funds, but, as is usual, the latter do not cover the immediate needs.

Would it be possible to bring our existence to the attention of the profession in *The Professional Geographer*, and present our plea to colleagues who might be in a position to divert in our direction surplus geological and geographical materials? Our temporary office is located at Room 211-212, 4626 North Knox Avenue, Chicago 30, Illinois.

The generosity of our colleagues, and your personal cooperation in this matter, are deeply appreciated.

Roger H. Charlier
Chicago Teachers College – North

THE CAMPUS FRINGE

Dear Editor:

As college and university enrollments rise, the need for additional campus space increases. Expansion must occur either horizontally or vertically, or both. Most institutions are not so well endowed with land that they can expand horizontally into vacant property. Even the fortunate few usually find that their unused land lies in the wrong direction from the heart of the campus, and that new buildings on such land are a long way from the library and other central facilities. On the other hand, expansion into developed land which is proximal to the center of academic life would usually necessitate large expenditures by a university.

But campuses must expand; hence, the problem of the campus fringe – that area which surrounds a college or university. Many questions of truly geographic nature are pertinent to the campus fringe. What are the criteria by which it can be delimited? What are its distinguishing characteristics? Are there *types* of campus fringes: a UCLA type, a Chicago type, a St. Cloud State type, an Iowa type? Are there any significant areal associations which pertain to campus fringes?

What are the problems of campus fringes? How have these problems been faced by different schools? Are there any principles which research geographers might discover which would be useful to campus authorities facing decisions regarding expansion problems?

The purpose of this short letter is to see if there are enough urban geographers interested in this topic to present a series of papers at some future annual meeting of the Association on the general theme of The Campus Fringe. If there could be four papers analyzing the fringes of four different types of campuses, we surely would have grist for a profitable discussion period. The least we could expect is an interesting session at the meetings; and we might discover that the campus fringe is truly a significant type of geographic area.

Will any urban geographers interested in this proposal please contact the writer. If enough interest is shown, we might have a preliminary session of three or four papers at the Miami (or Denver) meetings.

John W. Alexander
University of Wisconsin

NEW PUBLICATIONS

Store Location Research for the Food Industry. SAUL B. COHEN, ed. National-American Wholesale Grocers Association. New York. 1961. 134 pp. illust. $30.00 per single copy; $25.00 each for three or more copies. To universities and libraries: single copies, $3.00 each; four copies for $10.00.

This volume presents the results of a seminar in store location research or, more broadly, marketing geography. A little more than half of the space is devoted to eight papers that were presented at the seminar.

In the first paper, Saul B. Cohen and William Applebaum argue for a Store Development Plan, comparable to the Urban Master Plan. Such a plan should begin with an analysis of a company's current stores and operating environment, then project a program for the stores and operating environment, and finally change the projection for the company's stores to accord with the projected operational environment.

The seven other papers are by individual authors. Three are by Cohen. In one he deals with the problems of store overbuilding, discussing several methods of measuring saturation and several levels of saturation. In a second paper he considers the role of the market area inventory in store location research, and in a third the evaluation of planned shopping centers, offering a tentative classification of shopping centers.

Four other authors have contributed to the series. Bernard J. Kane, Jr., in a paper on inventorying state and local source material, points out that a substantial part of store location research is information gathering; and George K. Lewis focuses on the obtaining of population data for trading area analysis. William J. Sullivan contrasts field methods used 10 years ago in judging the store location possibilities of a town with those in use today. Another author, Bart J. Epstein, discusses measurement of a trading area, including such items as interviewing, tabulation and manipulation of data, interpretation of data, and estimation of potential per capita sales.

The remaining pages of the volume are devoted chiefly to a seminar discussion and to a seminar field problem.

RAYMOND E. MURPHY
Clark University

Oceanography. MARY SEARS, ed. Publication No. 67, American Association for the Advancement of Science. Washington, D.C. 1961. xi and 654 pp. illust. $14.75; AAAS members, $12.50.

This volume contains the invited lectures presented at the International Oceanographic Congress held in New York, August 31 to September 12, 1959. Selected broad problems of marine investigations are treated, with emphasis upon interrelationships between scientific disciplines. The reader should not expect a summary of all existing knowledge about the oceans, but many succinct summaries of the present status of knowledge in specific areas of research appear in the 30 papers of the volume. The impressive list of references includes 847 citations; of these, 414 were published since 1955. The tabulation of papers by nationality of authors is: United States 9, England 5, Scotland 3, Sweden 3, USSR 2, Denmark 2, Germany 2, Canada 1, Norway 1, Belgium 1, and Holland 1. An author index and a subject index are provided to help the reader.

The papers are arranged in five groups: History of the Oceans; Populations of the Sea; The Deep Sea; Boundaries of the Sea; and Cycles of Organic and Inorganic Substances in the Ocean. In each broad category, past achievements are evaluated in the light of new approaches to common problems. Thus the book is a valuable reference for those whose interests may lie in many areas of activity in the marine sciences.

In the paper, Paleobiogeography of the Marine Realm, the scientist is urged to "consider whether observed distributions can be satisfactorily explained in the present framework of the earth, then explore other possibilities." In another paper, Biogeographical Problems, attention is focused on the dynamics of distributions, rather than the static distributions so frequently shown on charts, and on problems in the design of field surveys of distributions and abundances.

The weaknesses of the book are those one would expect in a compilation of 30 lectures by as many authorities. Nevertheless, the reader who is interested in the problems confronting the oceanographer, and in interrelationships between the basic sciences that are common to other areas of investigation, will find this a valuable reference.

NEIL A. BENFER

McGraw-Hill Encyclopedia of Science and Technology

Southwest Trails to New Horizons. VICTOR H. SCHOFFELMAYER. The Naylor Co. San Antonio, Texas. 1960. xviii and 249 pp. illust. $4.95.

Southwest Trails is not a geography book *per se;* it is the story of the author's participation in the agricultural development of a segment of the Southwest, with special emphasis on that of Texas. The book deals with a variety of topics, each chapter being more or less a separate unit; nevertheless, the unifying thread of agricultural development is consistently present.

The author is a newspaper man, now Science Editor Emeritus of the *Dallas Morning News.* His career was characterized by a continuing crusade to improve the lot of the Southwestern farmer – to break his slavery to cotton by encouraging him to produce more and better cotton on fewer acres, in order to permit him to raise other crops including those needed to feed himself and his family. The author pays special tribute to the grain sorghums, which he states blazed the way to stable agriculture by providing a food and feed crop to a land where the problem of light and unreliable rainfall must ever be taken into account.

Space does not permit a complete listing of the many topics treated in this interesting volume. A random selection from the table of contents illustrates their nature: dry-land farming, demonstration trains, water for the Texas plains, the pink bollworm outbreak, pioneer Texas radio programs, the chemurgic movement, America's first pine newsprint mill, the Lower Rio Grande Valley, and the vanishing art of southern cooking.

Southwest Trails will definitely be of interest to geographers, particularly those concerned with historical, cultural, economic, and agricultural geography. The book is written in narrative style, is easy to read, and contains much that is geographic in that environmental conditions which entered into the evolution of Southwestern agriculture are consistently taken into account.

P.R.G.

Three Studies in Minerals Economics. ORRIS C. HERFINDAHL. Resources for the Future, Inc. Washington, D.C. 1961. iv and 63 pp. $1.00.

This pamphlet is a collection of three papers presented by the author as part of the program at the 1960 Western Resources Conference. The first paper, What Is Conservation?, focuses attention on the conflict in definitions of conservation. The various definitions that have found popular usage since the beginning of the conservation movement are examined individually and found inadequate. As an illustration, it is shown how the concepts both of resource development and of nature preservation are encompassed by common definitions. Yet, in the actual practice of conservation of natural resources, the two concepts may be totally incompatible. It is concluded that conservation cannot be dealt with on the basis of slogans, but that a conservative act may or may not be desirable, depending on the associated benefits and costs and perhaps on the redistribution of real incomes involved.

In the second paper, The Long Run Cost of Minerals, prices are used as an indication of the long run change in the total cost of minerals. After a defense of the choice of price as a measure of cost, the

theory is advanced that the price of metal *in the ground* must rise at the market price of discount. Simple, hypothetical examples are utilized to explain the behavior of prices according to this theory. Twelve mineral price series are then examined to relate long run cost changes to the underlying natural resource conditions, i.e., different rates of technological progress or changes in quality of the reserves. For the future, it is concluded that there is an enormous amount of substitutability in our system, and that the problem of some materials becoming too expensive to mine and process can be solved by going to more plentiful materials at somewhat higher cost.

The case of lead and zinc is used as a means for examining the topic, U.S. Trade Policy for Minerals, in the final paper. Production and price records of lead and zinc are reviewed from World War I to the present time. This is followed by a resume of proposals that have been presented since 1948 to relieve distress in the lead and zinc industries. After a discussion of the several different and, in part, conflicting objectives that import policy is supposed to serve, it is recommended that, instead of increasing protection, more attention should be devoted to adjusting to changing cost conditions by developing new economic activities to replace those in decline, and by facilitating movement of labor from those localities unable to find new economic activities to replace those that have died.

JOHN J. SCHANTZ, JR.
The Pennsylvania State University

Tropical Africa. GEORGE H.T. KIMBLE. Vol. 1, *Land and Livelihood*, 603 pp., illust.; Vol. 2, *Society and Polity*, 506 pp., illust. Twentieth Century Fund. New York. 1960. $15.00 for both volumes.

Of the spate of books and publications which has been written on Africa in recent years, Kimble's work seems likely to stand out for readability, breadth of coverage, and scholarly thoroughness.

Volume One will probably be the more interesting to serious students of Africa. It opens with a chapter on Economic Life at the Turn of the Century, which is followed by materials summarizing the physical frame of Africa – its relief, climate, vegetation, and soils. A chapter on demography is succeeded by two concerned with European and African agriculture and settlement. The continent's resources of forest, water, and minerals are next discussed. There is a chapter on industrial progress, followed by a longer one on transportation routes which is a subject of vital importance to African economic growth in peace and its military utilization in war. Discussions of markets and marketing, and the labor force, conclude the volume.

Volume Two will be the more interesting to the general reader. It opens with a section on the Old Order, which deals with the extended family, the clan, the village, and the tribe as well as education, religion, the arts, and health. The Rise of the Voluntary Organization describes, among other items, the emerging trade unions of Africa. Colonial policies are discussed by metropolitan areas. Chapters on Nationalism and Politics, and on The Machinery of Government, paint a detailed picture of emerging nationalism. The analysis of The New Elite will cause even the most ardent well-wisher of Africa pause for thought, if not actual pessimism. Two interesting chapters conclude the volume, one on the difficulty of acquiring capital for investment, and the other on the emergence of not only nationalism but a state of mind which can be called negritude. Negritude may be roughly defined as a native tendency to question the soundness of the white man's sense of value as well as to reject the validity of the white man's rule.

As can be seen from this brief outline, the study is semi-encyclopedic in character and greatly exceeds the limits conventionally set for a work in geography. It is to Kimble's credit that he has been able to serve up so rich a fare in so palatable a manner.

In the reviewer's estimation, the most serious deficiency of the work is its omission of a chapter on history and archaeology. To have described such early iron centers as Meroe and the spread of iron smelting across the continent, and to have described the great stone ruins and the iron artifacts of Zimbabwe culture, would have provided a far fairer base for judging the African than does the material in Chap-

ter One. The inclusion of such material would have balanced, if indeed it did not lead the author to eliminate, such statements as those which place the African in the Stone Age at the coming of the white colonist.

Another shortcoming of the work is its paternalism, which is coupled with a moralistic and religious bias. For example, considering the great variety of sex mores in Christendom, it ill behooves a Westerner to describe the sex mores of African college students in terms of sin and corruption. Again, we are told that the ethical standards of the African, as related to theft and pilfering, need lifting. In view of the current low wage of the African, might it not be more expedient to seek to raise his income at the same time one seeks to raise his morals? It is unfortunate that this otherwise scholarly work is marred here and there by the viewpoints of the less desirable aspects of colonialism, of the understandably frustrated white settler, and of the missionary, who too often seems more intent upon eradicating nakedness and tribal custom than upon spreading the basic tenets of Christianity.

Despite its relatively few shortcomings, Kimble's work is outstanding. For the Africa-bound Peace Corps student, for the Point Four Technician, for the government official recently come to the problems of Africa, for the interested businessman, and even for the tourist, *Tropical Africa* is to be highly recommended. A specialist has written for nonspecialists in an interesting and readily comprehended fashion.

H. THOMPSON STRAW

Hillsboro, Virginia

The Lands and Peoples of East Africa. G.M. HICKMAN AND W.H.G. DICKINS. Longmans, Green and Co., Inc. New York. 1960. xv and 232 pp. illust. $2.65.

This textbook is designed to provide an introduction to the geography of East Africa, and, as stated by the authors, "tries to show that some understanding of the geography of an area is an essential foundation to the planning of its future development."

The book consists of three main parts, four appendices, a glossary, and an index. Part I introduces some of the physical and human problems that must be considered in the development of East Africa, including those stemming from rainfall, soils, temperatures, pests and diseases, relief and communications, and diversity of peoples. Part II treats peoples and places – the different environments and how people react to them, as well as the many changes that are occurring. Topics in this section include the coastal regions, the plateaus, and the highlands. Part III summarizes the economic progress achieved to date in the four territories that make up the author's East Africa – Kenya, Uganda, Tanganyika, and Zanzibar. Individual chapters in Part III analyze the ways in which the land is used, production for export, development of industry, and distribution of population.

The book is well illustrated with maps, sketches, graphs, tables, and some excellent photographs. End papers consist of two colored maps: the regions of Uganda and Kenya, and the regions of Tanganyika.

Students of Africa will find much of value in this book. It is a timely volume for all who have an interest in world affairs whether they be geographers or not, particularly because East Africa is one of the areas of present vital concern to the world at large.

P.R.G.

Temperature and Wind Frequency Tables for Eurasia. Vol. 3, July-September; Vol. 4, October-December. J.N. RAYNER, ed. Arctic Meteorology Research Group. McGill University. Montreal. 1960.

These two volumes, numbers 21 and 23, are parts of the series of publications prepared for Headquarters, Quartermaster Research and Engineering Command, U.S. Army, Natick, Mass. They are in the sequence referred to in the July, 1961 issue of *The Professional Geographer.* In that issue, the writer reviewed the tables for North America and Greenland. In this review of the Eurasian research, attention is specifically called to the wealth of information on temperature frequencies (in both number and per cent) and on wind speed frequencies. A fine feature is the arrangement of the data: alphabetically by coun-

tries and then by station. The ease of using the four volumes is thus enhanced.

Here are raw data which challenge; geographers and other earth scientists look forward to an analysis of the data which is to be published shortly.

HENRY J. WARMAN
Clark University

The Blizzard of '88. IRVING WERSTEIN. Thomas Y. Crowell Company. New York. 1960. xi and 157 pp. illust. $4.50.

In the second week of March, 1888, gales, heavy snow, and below zero temperatures hit New York City. Over a period of 30 hours a snowfall of 20.9 inches was recorded, establishing a yardstick against which to measure subsequent New York blizzards. (In late December, 1947, 25.8 inches fell in about one-third of the time.) Traffic was halted; communications were disrupted; property losses totalled $20,000,000; and, in New York alone, 200 deaths were attributed to the storm.

In *The Blizzard of '88*, Irving Werstein has drawn largely from contemporary newspaper accounts to reconstruct the impact of the storm on a great city. The anecdotes are alternately amusing, bizarre, and macabre. An excellent selection of half-tones lends to the book a suggestion of documentation not evident in the text. The author simply relates the story of human beings in a blizzard. He makes no pretense to meteorological or historical analysis. The last sentence of the book sums up the theme of much that has gone before: "There is no place for purism in the world of folklore."

HOWARD J. CRITCHFIELD
Western Washington State College

Nebraska Place-Names, new edition. Lilian L. Fitzpatrick. University of Nebraska Press. Lincoln. 1960. xi and 227 pp. $3.00 (clothbound); $2.00 (paperbound).

Nebraska Place-Names is another of the increasing number of publications devoted to the origin and history of place names. The book integrates two publications formerly not widely available to the public, namely (a) Lilian L. Fitzpatrick's earlier edition of *Nebraska Place-Names,* published non-commercially in 1925 by the University of Nebraska, which comprises Part One of the present volume, and (b) selections from John T. Link's *The Origin of the Place Names of Nebraska,* which originally appeared in 1933 and forms Part Two.

In Part One, place names are grouped by counties. Each group is preceded by a brief discussion of the county itself, including the origin of its name and selected geographic and historic data.

Part Two is largely historical and deals primarily with the State as a whole. Items considered in this section include military posts; Indian reservations; forest reserves; State parks; hydrographic features; and a selection of names classified according to their type of derivation, such as those based on vegetation, relief features, and cultural features.

As stated on the book cover, *Nebraska Place-Names* should be of significance not only to Nebraskans but also to all who are interested in Western Americana.

P.R.G.

Lithofacies Maps: An Atlas of the United States and Southern Canada. L.L. SLOSS, E.C. DAPPLES, AND W.C. KRUMBEIN. John Wiley and Sons, Inc. New York. 1960. xviii and 108 pp. illust. $5.50.

This is a remarkable collection of 153 maps, compiled by members of the Department of Geology at Northwestern University, and designed to show certain aspects of the lithology of stratigraphic units, of Cambrian and later age, throughout the United States (save Alaska and Hawaii) and much of Canada. Most of the maps combine: (a) isarithms of thickness (isopachs) of the unit represented; and (b) patterns, of the Zip-A-Tone type (in two colors), that indicate lithologic characteristics of the unit.

Lithology is summarized principally through the use of three ratios: (a) the sand-shale ratio, i.e., the ratio of total thickness of sandstone in the unit to total thickness of shale in the unit; (b) the clastic ratio, i.e., the ratio of total thickness of clastic sediments to total thickness of pre-

cipitated sediments; and (c) the evaporite ratio, i.e., the ratio of total thickness of evaporites to total thickness of carbonates. The latter ratio is least often applicable. A majority of the maps combine the clastic and sand-shale ratios in a single scheme of symbolism. A few maps show other specific attributes, such as evaporite thickness, basal lithologies, or color.

The maps are arranged in age order, and, within each geologic period, proceed from the general to the specific. Thus, for example, there will be a map of the Cambrian System for the entire country, followed by regional maps, on a somewhat larger scale, for various stratigraphic units within the Cambrian, e.g., the Lower Cambrian in Southwestern United States and the Croixian Series in Eastern United States. At the end of the book are 18 pages of tables that indicate the formations included in each mapped stratigraphic unit; these provide a welcome and reasonably up-to-date listing, and approximate correlation, of the continually revised and renamed array of formations, groups, and series.

The usefulness of such an atlas to students of stratigraphy and of sedimentation is patent. Its value as an aid to the reconstruction of paleogeographies, especially of the environments of sedimentation, would seem especially great. To the geomorphologist, the lithologic information is for the most part too generalized (that is, the stratigraphic units are too inclusive) to be of great use, though some pertinent data concerning areal facies changes can be much better perceived here than in other sources. It is distinctly encouraging, however, to see any major mapping endeavor that is aimed at presenting lithologic information. The geomorphologist may well hope that it is the forerunner of more detailed regional lithologic mapping, which he so badly needs and so very rarely sees.

The authors freely admit that their maps are tentative, locally unreliable, and incomplete. This is understood and requires no apology. They are to be complimented for undertaking this pioneering task in "geological geography," and for presenting their findings in such ingenious and clear form.

EDWIN H. HAMMOND
University of Wisconsin

Data Sources for Plant Location Analysis. Office of Area Development, Business and Defense Services Administration, U.S. Department of Commerce. Washington, D.C. 1959. 42 pp. Available from the U.S. Government Printing Office; $0.20.

This booklet lists, and describes briefly, a collection of basic source materials pertaining to the problem of selecting plant sites. Designed primarily to assist manufacturers who are contemplating a shift in plant location, or the construction of a new plant, it also can serve as a valuable research tool for the industrially oriented geographer.

Source materials are classified under the following headings: general, fuels and electricity, labor, markets, resources, taxes and governmental finances, transportation, water, weather and climate, and other factors. There are a half-dozen useful appendixes that list the names and addresses of state economic development agencies, water agencies, employment security agencies, and tax departments, as well as similar information for railroad industrial departments and field offices of the Department of Commerce.

G.F.D.

Germany. T.H. ELKINS. Chatto and Windus, Ltd. London. 1960. 272 pp. illust. 15 s.

Germany is one of the Chatto and Windus series of textbooks dealing with the geography of individual countries (others are on France, Spain, and Italy) which is designed for intermediate level courses in college geography. The author also expresses, in the Preface, the hope that it will be "useful to others who are seeking a background knowledge of the land of Germany, its evolution, and its problems." The dilemma of how to delimit Germany is handled satisfactorily by including territory east of the Oder-Neisse line in the historical treatment, but not in the regional geographic section.

The volume is divided into four parts. Part One deals with the physical aspects of the country; Part Two, with the people (past and present); Part Three, with the economy; and Part Four, with the geographic regions of Germany. The latter are based partly upon political subdivisions

and partly upon physical features (e.g., the Rhenish Uplands). There are 55 figures, most of which are maps depicting such items as land forms, soils, natural vegetation, historical phases in the development of Germany, cities, and the author's geographic regions.

One of the particularly interesting aspects of this book is the historical information that it provides. Such a background enables the student or other reader to more readily comprehend Germany as it is today. Despite its relatively short length, *Germany* is a very informative book and well worth considering for student use. Because of the relatively small size of the country, brevity in number of pages has not forced the author to omit pertinent details.

P.R.G.

Atlas Selskovo Khosyaistva SSSR. Glavnoye Upravleniye Goedezii i Okhrani Nyedr SSSR. Moscow. 1960. vii and 309 pp. illust. $18.50 approx.

This new Soviet agricultural atlas is a welcome addition to the excellent group of atlases published in the USSR since the war. It is, in the reviewer's opinion, probably the most important, and we should bewail the fact that nothing comparable exists for this country.

In all, there are 378 individual maps in the study without counting separately the two-part maps depicting the European and Asiatic portions of the Soviet Union. The maps, which are mainly at scales ranging from 1:1,500,000 to 1:40,000,000, depict agricultural patterns by means of dot distributions and isopleth lines presumably based on detailed rayon data. A wide range of colors is utilized and the registry is excellent. Although no detailed descriptions of individual maps are possible here, the broad groups of maps include those depicting (1) the natural environment (with heavy emphasis on climatic factors); (2) general agricultural patterns (farms, machinery, electrification, fertilization, and so forth); (3) crop patterns (including dot distributions, shares of total sown acreage in various crops, and yields); (4) livestock patterns; (5) agriculture in each of the union republics (including depiction of agricultural regions within each republic, and crop and livestock distributions); and (6) productivity of agriculture, farm income, and processing of agricultural raw materials.

The information contained in this volume, coupled with data available in various statistical publications issued during recent years in the USSR, provides a rich base for fruitful research on the geography of Soviet agriculture.

ALLAN L. RODGERS
The Pennsylvania State University

Introduction to Plant Geography. NICHOLAS POLUNIN. McGraw-Hill Book Company, Inc. New York. 1960. xix and 640 pp. illust. $10.00.

Scores of books, in English and other languages, have been written on the subject of plant geography. These differ widely in accuracy, comprehensiveness, point of view, and recency of publication; but all have at least one characteristic in common — they are written by non-geographers. Bennett (*The Professional Geographer*, Vol. XII, No. 5, September, 1960) has recently indicated the almost total lack of participation by geographers in development of the field of animal geography. The same lamentable disinterest by geographers is likewise all too evident in the subject of plant geography. Despite the inattention of geographers, however, both plant and animal geography are flourishing disciplines, and new literature in each field is most worthy of consideration by members of our profession. Polunin's recent text on plant geography is one of the better ones among its contemporaries. It is certainly the most recent, and hence benefits from the inclusion of the latest in facts and theories.

Much of the book is given to the presentation of basic factual information about plants, and to the development of fundamental principles, theories, and premises concerning the field of plant geography. Indeed, the entire first one-half of the book is so employed by the author. In this section, such matters are explored as: the definition of the term plant geography; the classification and nomenclature applied to the plant world; descriptions of the major plant groups; the development of the plant world during geological time; the analysis of the physiological reactions of plants to various environmental conditions; and the

study of the various processes of plant dispersal, and the geographical aids and barriers to plant migration. In addition, this part of the book presents a classification of plant distributional patterns into types, both of natural and man-induced origins; studies the environmental factors that control plant distributions; analyzes the main plant habitats; and clarifies the concepts of plant succession (sere) and plant climax.

The remainder of the book is largely, but not entirely, concerned with a description of plant characteristics in each of the five great vegetational regions of the world: (1) temperate and adjacent lands, (2) polar and high altitude lands, (3) tropical and adjacent lands, (4) fresh, and inland saline, water areas, and (5) the seas. Concluding chapters are titled Landscapes and Vegetation, and Plant Adjustments and Applications.

Abundant photographs and drawings of plants, and a comprehensive index, increase the usefulness of the book to geographers, most of whom probably cannot differentiate between phylum and phlox. The relatively numerous maps, showing both plant distributions and the distributions of environmental factors of significance to plants, are of real assistance in rendering the book geographic in character. Any teacher of an introductory college course in physical geography would do well to purchase and read a copy of *Introduction to Plant Geography*, thereby increasing his probably dismally limited knowledge of the subject and opening up a new world of ideas to himself and his pupils.

G.F.D.

Western Forest Industry: An Economic Outlook. JOHN A. GUTHRIE AND GEORGE R. ARMSTRONG. Published for Resources for the Future, Inc., by The Johns Hopkins Press. Baltimore. 1961. xxvi and 324 pp. illust. $6.50.

This book is a comparatively detailed regional study of the forest resources of the 11 contiguous Western states, British Columbia, and Alaska, and of the Western wood processing industry and the larger economic environment in which it operates. Together with *America's Demand for Wood, 1929-1975* (Stanford Research Institute, for Weyerhaeuser Timber Company, 1954) and *Timber Resources for America's Future* (U.S. Forest Service, 1958), it provides an excellent basis for understanding this important Western industry and the policy issues associated with it.

In Chapter 1, the reader is first introduced to the region and then to the forest resource, which is described in terms of species, type composition and area, and saw timber volumes. There is also a brief survey of the regional pattern of ownership and of ownership policy.

Chapter 2 contains a compact overview, past and present, of the primary Western forest products industries: lumber, veneer and plywood, and pulp and paper (including the growing composition board industry). The emphasis here is on changes in such items as structure, production, location, type of product, raw material, and finished product prices. A large amount of statistical information is presented in tables, graphs, and maps.

Chapter 3 is a projection of the forest products industries to 1975. It is designed primarily to determine future markets for the industry's output, and to identify trends in production that are likely to continue. The chapter builds on the forecasts of future demand for forest products made by the Stanford Research Institute and the U.S. Forest Service in the studies previously referred to; it has the advantage of being corrected by trends that have materialized since these earlier projections were published. A rather high demand for wood is predicted for 1975.

Chapters 4 and 5 examine the capacity of Western forests to supply a large amount of usable wood. Saw timber inventory, growth, and the effect of stumpage price changes on supply are considered in the former chapter; sustained yield, and allowable cut policies of public and private agencies, are dealt with in the latter. The two chapters, together, cover only 34 pages, and are therefore general in their treatment and lacking in the statistical support that is found in earlier sections of the book.

The summary and conclusions attempt to integrate previous materials, and to state in general terms the outlook for the Western forest industry. However, the task is so great that the authors are forced to fall back upon a good many standard economic

generalizations, which, in the opinion of this reviewer, fail to answer questions which are asked in the main body of the book. A pocket map presents a new interpretation of the distribution of major commercial forest types; Appendix B defines the types and gives sources from which the compilation is made.

This is a valuable reference book for those interested in economic development of the West and in forest land use and extractive industries. Geographers will find it the most useful overview yet published on the Western forest industry; and those in the profession who are interested in other uses of forest land, such as recreation, grazing, and water production, will find the book a useful introduction to the viewpoint of commercial forestry. It is valuable to the economic geographer also as a demonstration (along with Guthrie's earlier *Economics of the Pulp and Paper Industry*, Pullman, Wash., 1951) of the detailed analysis of an industry on a regional basis.

LOUIS HAMILL
University of Oregon

Chisholm's Handbook of Commercial Geography, 16th edition. L. DUDLEY STAMP AND S. CARTER GILMOUR. Longmans, Green and Co., Inc. New York. 1960. xiii and 915 pp. illust. $16.50.

The price of this book may at first seem somewhat high, but not after one has examined the contents of its nearly 1,000 pages. A statement on the dust cover, to the effect that it is a companion geography, an essential book of reference for libraries, and one that will be consulted by many others in addition to geographers, is particularly apt. The publication is crammed with useful textual information, as well as containing a number of maps and diagrams.

Much of the content in the 16th edition is completely rewritten and most of the remainder is extensively altered, thus bringing the volume up to date. Material is treated both topically and regionally.

The topical portion of the book includes basic facts relating to the production of commodities (subheads include climate, soil, irrigation, labor, devastating agents); circumstances connected with the exchange of commodities (categories of transport, handling, commercial and industrial towns, language, and others); and the commodities themselves (agricultural, fishery, mineral, and manufactured).

The regional part of the book consists of sections devoted to major subdivisions of the world (mostly continents) and their political units.

The above brief listing does not begin to do justice to the large number of items covered, but it at least provides a sample of the almost encyclopedic fare available. In the reviewer's opinion, this publication should provide all geographers, regardless of their fields of interest, with much useful information. The scheme of organization of the book, together with its very complete table of contents and its index, makes for easy reference.

P.R.G.

Papers on Flood Problems. GILBERT F. WHITE, ed. Research Paper No. 70, Department of Geography, University of Chicago. University of Chicago Press. Chicago. 1961. vi and 228 pp. illust. $4.00.

Those geographers and others interested in flood plain occupance will welcome this new contribution to the series of volumes on flood problems from the Department of Geography of the University of Chicago.

Encroachments on flood plains, and resultant flood losses, continue at a high level despite efforts to control floods and to prevent flood damage. What should be the strategy for dealing with these problems? The nation cannot afford to stop using flood plains, many of which are extensively developed, but, on the other hand, it cannot afford to continue to subsidize all those who, through necessity, ignorance, foolishness, or intentional gambling, subject themselves to periodic flood losses. The papers in this volume clarify some of the issues involved, and suggest certain lines of action for developing a suitable procedure for handling floods and flood damage.

The book is divided into four sections: (a) a brief introduction on the strategy of using flood plains; (b) five papers on flood losses and flood plain occupance; (c) two papers on flood characteristics; and (d)

five papers on regulating land use in flood plains. The two flood characteristics studied are flood-to-peak interval and seasonality.

Geographers will be particularly interested in the chapter on the relationship between flood losses and flood control benefits, and the chapter on flood hazard evaluation which suggests a framework for flood plain regulation.

The bibliography is extensive and of considerable usefulness. Its section on flood plain zoning is especially valuable.

ROBERT H. CHILCOTE
The Chesapeake and Ohio Railway Company

Discovery and Exploration: An Atlas-History of Man's Wanderings. FRANK DEBENHAM. Doubleday and Company, Inc. New York. 1960. 272 pp. illust. $9.95.

This is a lavish book, a thing of beauty. It is likewise a veritable fount of information about man's quest of the geographically unknown, for it is filled with more facts about explorers and exploration than any single other source that has come to the attention of the reviewer. To top it all, the story it tells is so intriguing, to geographer and layman alike, that both will find it difficult to lay aside once they have opened its covers.

Discovery and Exploration chronicles the quest for knowledge about our planet during the past 50,000 years, from prehistoric times to the present space age. Much of its tale is told in words, but scarcely a page is without its quota of beautiful graphics – superb multicolor maps, vivid color reproductions of woodcuts and engravings, and the like.

A listing of the book's contents, by chapters, gives insight into its scope and organization; but mere tabulation fails to convey the aura of beauty and authority that permeates the work. Four introductory chapters – Why Man Explores; Man Learns to Explore; The World Grows Larger; and The Great Age of Discovery – are followed by eight sections describing the explorations of South America, North America, Asia, Australasia, Africa, the polar areas, the oceans, and outer space. Additional chapters, in the nature of appendices, describe ships and navigation techniques and instruments, map the routes of scores of famous world explorers, depict graphically the gradual discovery of various sections of each of the continents, and present a bibliography of books on explorers and exploration. A general index, and a map index, conclude this superb work.

The author of *Discovery and Exploration* is the renowned geologist, writer, and explorer, Frank Debenham. He was with Captain Scott's famous polar expedition from 1910 to 1913, is founder-director of the Scott Polar Research Institute, and is professor emeritus of geography at Cambridge University. The book does justice to an illustrious author.

G.F.D.

Applied Geography. L. DUDLEY STAMP. Penguin Books, Inc. Baltimore. 1960. 208 pp. illust. $0.95.

The theme of this book is expressed in the first chapter, wherein the author states: "If the past fifty years have been spent in developing geographical methods of survey and analysis, surely the time has now come to apply these same methods towards the understanding and interpretation of some of the features of the world today. Further, the time has surely come when these same methods of survey and analysis can be used in helping towards the solution of some of the great world problems – the increasing pressure of population on space, the development of under-developed areas, or the attempt to improve living conditions, which is the object of town and country planning. Such is, indeed, the field of applied geography, and in the pages which follow a number of current problems will be examined and subjected to geographical analysis."

The problems that are dealt with by the author are concerned to a large extent with various types of land use. These are illustrated by the following representative chapter titles: Land and People, The Interpretation of the Population and Land-Use Patterns, Land Planning, The Evolution of Town and Country Planning in Britain, and Some Aspects of Rural Land-Use Planning. Among other types of materials treated are certain aspects of urban and industrial geography and of trade. As one might expect, the book is focused on Great Britain, a region that offers an excellent field

for study of problems based, at least in part, on the existence of a considerable number of areas of high population density in which there is a complexity of land use patterns resulting from many hundreds of years of settlement.

In the concluding chapter, the author makes a strong plea for the making and using of maps, not only for analysis by geographers but also to assist workers in other fields to gain a clearer understanding of the geographic aspects of world problems. He cites one interesting, but almost unbelievable, example of the problems arising from geographic ignorance, namely, the delegates meeting in Versailles at the end of the First World War are said to have wasted a considerable portion of one session, in which the future of Georgia was being discussed, because one group of delegates was thinking of Georgia in the USSR and the other of the State of Georgia in the United States! This volume, however, is concerned with more complex geographic problems than those of place geography alone.

P.R.G.

Life Pictorial Atlas of the World. PHILLIP BACON AND EDWARD B. ESPENSHADE, JR., eds. Time, Inc. New York. 1961. 600 pp. illust. $30.00.

The editors of *Life* and Rand McNally have given us the best commercial atlas ever published in the United States. Unique is perhaps the best way to describe the *Pictorial Atlas* in a single word, for nothing like it has ever been produced. At the same time, it is both more and less than a true and complete atlas.

Some 280 color pages are devoted to physical and political maps of the world, including each state of the United States and province of Canada. Physical plates represent the latest development in three-dimensional techniques. Submarine and lunar maps also make up part of the physical inventory. Political maps serve primarily as repositories for thousands of place names. Fifty pages contain global views of the earth as it will be seen someday by the astronaut. These plates, produced by photographing an accurate and detailed globe designed solely for this purpose, possess physio-vegetative detail of superb realism. In addition to the maps and global portrayals, hundreds of special charts, diagrams, and illustrations depict physical, political, economic, historical, and socio-cultural features. Numerous text illustrations accompany these items. The gazetteer contains approximately 75,000 names, and catalogs virtually every significant feature on the earth's surface. The names are keyed to the maps by letter and number grid coordinates; latitude and longitude are not employed in the index. Census data are as of 1960 for the United States, and include the latest available figures for other areas. The quality of the volume is enhanced by the use of slick paper, which permits beautiful reproduction and results in a weight of nine pounds.

In the above respects, the *Pictorial* is a better than average atlas, and it equals the best European products when similar plates are compared. It falls far beneath them, however, in other aspects. Maps of natural phenomena are sparse; there is no soils map, no zoological map, a pathetic vegetation offering, and no geological map, to cite only a few of the omissions. When compared with superior German, Swiss, French, and Soviet atlases, the plates for the natural environment are woefully elementary or absent. Socio-cultural and human maps (races, religions, languages, and so forth) are even more poorly represented. American cartographic houses continue to think primarily in terms of topographic and political mapping. This nation is long overdue for a single volume atlas that will contain first rate maps of house types, diseases, animals, plants, ancient history, and a host of other topics.

On the positive side, the *Pictorial* is more than an atlas since it has over 100 pages of striking color photographs, many of which are of full page dimensions. Most pictures are actual or potential award winners by *Life's* unequalled cameramen, and they depict representative natural and cultural scenes. The excellent photographs aid greatly in helping an individual to mentally visualize the map symbols. Surely these, when coupled with the shaded relief maps and global views, bring an aura of realism to what used to be the flat world of not so long ago.

Life and Rand McNally must be applauded for providing us with such an

accurate and high quality atlas. A copy belongs in every American house, office, and classroom.

ROBERT H. FUSON
University of South Florida

Campground Atlas of the United States and Canada. JAMES A. BIER AND HENRY A. RAUP. Alpine Geographical Press. Champaign, Illinois. 1960. 177 pp. illust. $3.00.

This paperback is a real boon to the traveller or vacationist who is seeking an inexpensive means of touring the United States and Canada. It maps, and lists by states and provinces, nearly 5,900 automobile camp grounds, including those located in national parks, monuments, recreational areas, and forests; in state and provincial parks, and in many state and provincial forests; and in county and municipal parks. Privately managed camp grounds also are included when definite information about them is available. Data on the maps and in the list are keyed together with numbers.

G.F.D.

A Short Geography of West Africa. J.C. PUGH AND A.E. PERRY. University of London Press, Ltd. London. 1960. 288 pp. illust. 9 s. 6 d.

This textbook is designed primarily for lower level West African students, and, as stated in the Preface, "is more detailed than many textbooks which deal with West Africa . . . because the authors believe that students in the Commonwealth territories of West Africa should know their 'home region' in particular detail."

The publication is divided into two parts. Part I, West Africa as a Whole, treats such items as physical background, climate, soils, vegetation, disease, and history and peoples. Part II, The Territories, deals with the region's political entities, starting with Senegal and Gambia in the west and including all political units as far east as Cameroon (British). The last chapter discusses the future of the region.

There is an appendix, consisting of statistical tabulations of area, population, and trade; and an index of place names. There are 55 maps, 17 figures (sketches, diagrams, graphs, and cross-sections), and a generous number of good quality photographs in the book.

Geographers, and others interested in West Africa, will welcome this excellent publication which fortunately can be added to their libraries for a modest sum.

P.R.G.

Soils of the North Central Region of the United States. Bulletin 544 (North Central Regional Publication No. 76), Agricultural Experiment Station, University of Wisconsin. Madison. 1960. 192 pp. illust. $2.00.

This bulletin gives information on the soils of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin, and was produced by members of the agricultural experiment stations of these states working in cooperation with the staff of the U.S. Department of Agriculture.

The study analyzes soil formation factors in the north central region, describes its major soil groups, details characteristics of its soil series associations, presents a number of soil charts, and concludes with a discussion of soil management problems in the region.

The bulletin provides an up-to-date and coordinated summary of information about a subject that otherwise is treated in piecemeal fashion in a wide array of scattered sources.

G.F.D.

NEW MAPS

Manufacturing Industries

SUBTITLE: none. AREA: Australia. SCALE: center map – 1:13,500,000; surrounding maps – 1:17,500,000 and 1:23,000,000. SIZE: 28.5" x 29.5". METHOD OF REPRESENTATION: symbols of various shapes, sizes, and colors. EDITOR: T.W. Plumb. PUBLISHER: Department of National Development, Canberra. DATE: 1960. SERIES: last of 30 map sheets (82 maps) of the *Atlas of Australian Resources* (first sheet published in 1952). SOURCE: Angus and Robertson Ltd., Sydney and London. PRICE: unavailable. (G.F.D.)

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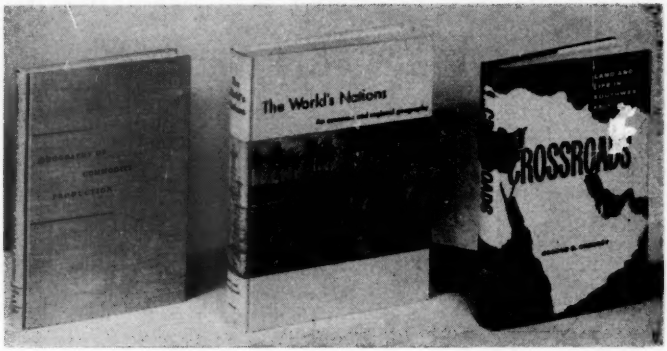

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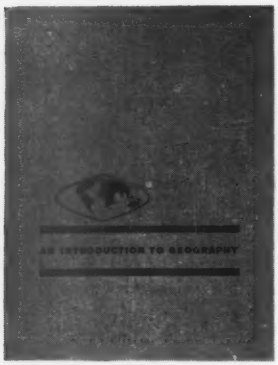

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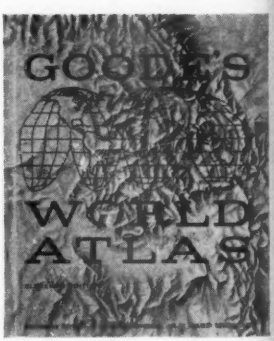

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